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ABSTRACT

A study was made to identify needs and barriers related to the mainstreaming approach and to assess attitudes of secondary principals and occupational education teachers toward mainstreaming and their perceptions of needs and barriers. The design of the project involved a three-phase research effort. The first phase utilized the Delphi Technique with local occupational education program administrators to identify needs and barriers. The second and third phases involved mail surveys of principals (N=101) and occupational education teachers (N-568). It was found that principals and teachers were neither highly accepting nor highly rejecting of the mainstreaming approach. Priority needs and major barriers were identified and their implications for program planning discussed. Teachers and principals expressed general agreement on the priority needs and major barriers, and held similar attitudes toward mainstreaming. It was recommended that future mainstreaming efforts utilize this project's products in overcoming the major barriers and in coordinating programs. Information was derived on a statewide basis to guide development and operation of vocational education programs for North Carolina's handicapped students. (Appendixes contain identification of mainstreaming needs and barriers, survey packets for secondary school principals and occupational education teachers, and a dissemination conference report. References and data tables are included.) (Author/CT)

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FINAL REPORT

Project No. 498AH60193
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MAINSTREAMING THE HANDICAPPED IN PREPARATORY OCCUPATIONAL EDUCATION PROGRAMS IN NORTH CAROLINA

James H. Hughes
Project Director

March 1978

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

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U.S. Department of Health, Education and Welfare
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Bureau of Occupational and Adult Education

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AUTHOR'S ABSTRACT

The purpose of this study was to identify needs and barriers related to the mainstreaming approach, and to assess attitudes of secondary principals and occupational education teachers toward mainstreaming and their perceptions of needs and barriers.

The design of the project involved a three-phase research effort. The first phase utilized the Delphi Technique with local occupational education program administrators to identify needs and barriers. The second and third phases involved mail surveys of principals (N=101) and occupational education teachers (N=568).

It was found that principals and teachers were neither highly accepting nor highly rejecting of the mainstreaming approach. Priority needs and major barriers were identified and their implications for program planning discussed. Teachers and principals expressed general agreement on the priority needs and major barriers, and held similar attitudes toward mainstreaming.

Recommendations for actions utilizing project products, for overcoming the major barriers, and for program coordination were made. The study provides information derived on a state-wide basis to guide development and operation of vocational education programs for North Carolina's handicapped students.

The methodology has direct applicability to other states, with modifications appropriate to particular state circumstances, interested in fact-finding and action programs concerned with mainstreaming the handicapped.

FOREWORD

This report is the result of a study which addressed one of the most important issues currently facing vocational education in North Carolina. In the past, vocational education programming for the handicapped has been limited, although expansion of programs is continuously increasing. Even more limited has been the involvement of handicapped students in the regular vocational education programs which provide job-entry level skill training. With mandatory legislation requiring appropriate education for the handicapped in the least restrictive setting, the "mainstreaming" of handicapped students in vocational education will receive much more attention. Implementation of this concept, however, will require adjustments in the delivery system, and by school personnel who provide vocational education. What are the needs that must be met? and what are the barriers that must be overcome if these adjustments are to be made successfully? This study attempted to assess the needs and barriers as identified by practitioners in the field--the teachers, principals, and local administrators.

The study would not have been possible without the support and assistance of a number of individuals and agencies. The cooperation and support of the North Carolina State Department of Public Instruction is gratefully acknowledged. Dr. Charles J. Law, Jr., Director, Division of Vocational Education, and Dr. Charles H. Rogers, Director of the Occupational Research Unit, provided assistance and encouragement in the initial development of the project. Mr. Jim Lunsford, the Division's Chief Consultant for the Disadvantaged and Handicapped, was involved continuously throughout the project. His support and assistance on all phases of the project were invaluable in facilitating an interface between the project and the Division of Vocational Education. His insight and guidance helped to keep the project focused on important program issues. Mr. Lowell Harris, Assistant Director, Division for Exceptional Children, served ably in providing liaison between the project and his division. Dr. Alan Hill, Director, Division of Management Information Systems, was extremely helpful in the early period of the study by facilitating data collection and forms clearance and providing personnel printout data used in the selection of study samples.

The assistance of Dr. James L. Paul and Dr. Roy Sommerfeld, University of North Carolina at Chapel Hill, who served as project consultants was most helpful. Dr. Paul assisted in the early conceptualization and planning of the study, the analysis of the Delphi responses, the design of the questionnaire and in reviewing draft copies of project reports. Dr. Sommerfeld assisted in the formulation of the data analysis plan, computer scoring of instruments, and in the analysis of the data. Mr. Pat Gallagher, a doctoral student in special education at UNC-CH, provided technical assistance on the design of the survey questionnaire.

Personnel in the Research Branch, Division of Research and Demonstration, Bureau of Occupational and Adult Education, U.S. Office of Education, are acknowledged for their assistance. Ms. Velma Brawner and Dr. Jack Wilson provided many helpful suggestions to the project during its beginning. Dr. Paul Manchak, assigned as Project Officer during the course of the project, was supportive and helpful, especially in working through several key decisions that had to be made during the project period.

My associates at System Sciences, Inc. must also be mentioned for their very helpful support. Mr. Eric Rice, Mr. John Poe and Ms. Rose Etheridge reacted to draft materials and assisted in many other ways. Dr. Edgar A. Parsons provided project management support and reviewed final draft reports. Ms. Olivia Ludington provided research and clerical assistance throughout the project, especially in the administration and analysis of the Delphi procedure and the mail surveys of principals and teachers. Ms. Doris Lange provided efficient and highly competent assistance in supervising the preparation of project reports and related materials.

Finally, the project could not have been conducted without the efforts and assistance of the local vocational education directors, principals and vocational education teachers throughout North Carolina who participated in the study. Their willingness to share their ideas and opinions on this important issue will help to improve vocational education programs for the handicapped in North Carolina.

* * * * * * * * * * * *

The study was funded by the Bureau of Occupational and Adult Education, U.S. Office of Education, which gave priority to research projects on mainstreaming the handicapped in vocational education in its FY 76 research program. The data relate to this important subject in North Carolina.

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I. Background and Purposes

Legislative Mandates

Recent trends in litigation and federal and state legislation have required the assurance of equal educational opportunities for the handicapped. At the federal level, The Education of All Handicapped Children Act, P.L. 94-142, established, as a matter of national policy, the right of handicapped children and youth to a free, appropriate education in the least restrictive educational setting. The intent of this policy is to provide individual handicapped students with a meaningful education in that setting which is as close to normal as possible, thus ending any unnecessary isolation of the handicapped from their peers and hopefully facilitating their post school adjustment to "mainstream" American life. There are implications for vocational education in P.L. 94-142. Tomlinson and Albright (1977) pointed out the need for an interdisciplinary approach between special education and vocational education in implementing individualized education plans.

The General Assembly of North Carolina, 1977 Session, ratified House Bill 824, "An Act to Provide for a System of Educational Opportunities for All Children Requiring Special Education." This Act makes North Carolina legislation consistent with federal legislation.

Definitive federal legislation relevant to vocational education opportunities for the handicapped dates back to the early 1960's with the passage of the 1963 Vocational Education Act. However, there was only minimal effort on the part of states to respond to the 1963 act's provision that the states provide vocational training for the handicapped. In 1968, Congress passed Vocational Education amendments requiring states to reserve 10% of their federal vocational education funds for the exclusive purpose of financing programs for the handicapped.

The response of the states to this congressional initiative, however, continued to be mixed, as exemplified by a report in the American Vocational Journal (1975). Program development was occuring in some states, but limited numbers of programs were available in other states. While some progress in serving greater numbers of handicapped students in vocational education was being made, the need for continued improvement was also recognized (Gentry, 1974).

The most recent vocational education legislation, Title II of the Education Amendments of 1976, continued the 10% set-aside provision and further required states to match, dollar for dollar, these federal funds with state and/or local funds. In carrying out the programs, states' use of funds expended for the handicapped must be consistent with states' plans submitted under the Education of the Handicapped Act.

Mainstreaming

A key concept arising from these legislative mandates has been the "least restrictive alternative" requirement for educational placement of the handicapped. Implementation of this concept has led many educators to consider "mainstreaming" as a viable option in the delivery of educational services to the handicapped.

Mainstreaming refers to the new efforts in public schools to provide a more appropriate education for all students in the least restrictive setting.

Mainstreaming is an important and, a potentially dangerous, educational innovation. It is important because it suggests providing, for the first time, full participation by handicapped students in the educational system. It is dangerous because, without appreciation of the complexity of the changes involved and without sufficient professional and technical support for implementing those changes, mainstreaming could adversely affect advances already made in providing educational services for handicapped students.

The following definition, adapted from the Council for Exceptional Children (1975), serves to clarify the mainstreaming approach.

Mainstreaming is:

- providing the most appropriate education for each student in the least restrictive setting;
- looking at the educational needs of students instead of clinical or diagnostic labels such as mentally handicapped, learning disabled, physically handicapped, hearing impaired, or gifted;

- looking for and creating alternatives that will help academic and vocational educators serve students with learning or adjustment problems in the regular setting. Some approaches being used to help achieve this are consulting teachers, methods and materials specialists, itinerant teachers and resource room teachers; and,
- uniting the skills of academic and vocational eduation and special education so that all students may have equal educational opportunity.

Mainstreaming is not:

- wholesale return of all exceptional students in special classes or programs to regular classes;
- permitting students with special needs to remain in regular classrooms without the support services that they need;
- ignoring the need of some students for a more specialized program than can be provided in the general education program; nor,
- less costly than serving students in special self-contained classrooms or programs.

Whether mainstreaming is a fad or a legitimate response to the demand for least restrictive alternative approaches to educating children with special needs may depend on the local meaning of the term, how it is introduced to staff in a local school district, and the circumstantial correlates existing there at the time of introduction. Implementation by principal/teacher groups who request the right to mainstream children with special needs may be quite different from implementations resulting when a school principal introduces the concept to teachers as something forced on them by a local Board of Education.

In general, mainstreaming is a system problem and raises many instructional, social and psychological questions. The empirical consequences for handicapped children, for non-handicapped children, and for teachers are not clear. The conceptual, philosophical, organizational and programmatic consequences for general education, vocational education and for special education are also yet to be articulated. The limited empirical support for a mainstreaming rationale -- primarily an antidote to the inefficacy of special classes -- hardly leads directly to an alternative that one could be assured would be better than the existing system. The legal rationale, involving the rights of children to an education, significantly -- and appropriately -- stops short of describing how that education can be provided.

Regardless of the arguments for and against mainstreaming, state and federal legislation requires that the "least restrictive environment" concept be implemented in all educational programs for handicapped students, including vocational education.

Handicapped Students in Vocational Education Programs

Career and vocational education programs are critical for every student in attempting to become a contributing member of society. To date, there are insufficient programs being provided to handicapped students.

Projected enrollment figures provided by the Bureau of Occupational and Adult Education estimated that in FY 78, the number of handicapped students in vocational education will be 405,000, and represent only 2.2% of total vocational education enrollments.

Aside from the problem of the large number of unserved handicapped students, most of those that are served are maintained in special programs. A large majority of vocational classes contain no handicapped enrollees (Osso, 1974). A national study (Olympus Research Corporation, 1974), indicated a high incidence of special programs as evidenced in the statement that,

> "Nearly 70% of the projects included in the representative sample were categorized as 'special' indicating that integration of the handicapped with regular students is still more a goal than a reality." (p. 209)

There is an estimated total of 54,180 individuals, ages 14-21, in North Carolina that are classified as handicapped. In School Year 75-76, 3,875 students were served in occupational education programs. Pre-vocational programs (awareness and exploration) enrolled 1,244. The remaining 2,631 were served in secondary school programs, as follows:

Specific skill training	973
Remedial (optional program)	251
Not elsewhere classified	1,407
	2,631

In School Year 1976-77, 3,496 handicapped students were served in occupational education programs. Figure I provides a crosstabulation of this enrollment by occupational program area and type of handicapping condition. The majority of handicapped students served were educable mentally retarded (64%). Other categories served, in terms of their percentage of total students served, were: trainable mentally retarded (11%), learning disabled (9%), crippled (6%), and deaf (5%). In terms of program area, the largest number of students were served in special (45%) and pre-vocational programs (21%). Of the handicapped students enrolled in vocational education, 978 or 28% were enrolled in regular skill training program areas. The majority of these students were enrolled in Trade and Industrial Education (65%). Of these students enrolled in regular skill training programs, 245 or 25% were enrolled in cooperative education courses, including Coop Distributive Education, Industrial Cooperative Training, Cooperative Office Occupations and Agricultural Coop.

The 3,496 handicapped students who were served were enrollees of 76 of the State's 145 school systems. The average number of students served per participating school system was 46, and the number served ranged from a minimum of one student to a maximum of 184 students.

The data indicate that a large number of handicapped, secondary level students remain unserved by an occupational program. Aside from the problem of the large number of unserved handicapped students, most of those that are served are enrolled in pre-vocational or special programs.

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Figure 1

Number of Handicapped Students Served in Vocational
Education in North Carolina, School Year 1976-77, by Program Area
and Type of Handicapping Condition

	Agriculture	Distributive Education	Health Occupations	Consumer and Homemaking Education	Occupational Home Economics	Business Office Education	Trade and Industrial Education	Pre-Vocational	Industrial Arts	Special Programs	Total for All Programs
Trainable Mentally Retarded				4	21	2	57	42		247	373
Educable Mentally Retarded	42	130	11	133	14	1	500	448	14	958	2251
Hard of Hearing	6							4		5	15
Deaf	16	3					11			143	173
Speech Impaired							1	10		15	26
Visually Impaired				8			8	4		7	27
Seriously Emotionally Disturbed		7					1	7		36	51
Crippled	9			44		48	31	79	5	6	222
Other Health Impaired							7	8		15	30
Learning Disabled	7	3	5			2	16	147		148	328
Total for All Handicaps	80	143	16	189	35	53	632	749	19	1580	3496

Source: Field Support Section, Division of Vocational Education, North Carolina State Department of Public Instruction.

Mainstreaming Handicapped in Vocational Education

The study was funded by the Bureau of Occupational and Adult Education, U.S. Office of Education; which gave priority to research projects on mainstreaming the handicapped in vocational education in its FY 76 research program. The data relates to this subject in North Carolina.

The objectives of the study were:

1) Identify the needs and barriers to mainstreaming by surveying a sample of local directors of occupational education, occupational education teachers and principals of high schools offering occupational education programs;

2) Investigate the relationships between teacher attitudes, needs and barriers to mainstreaming with selected variables: occupational program area, size and location of school;

3) Investigate the relationships between attitudes of high school principals, and identified needs and barriers to mainstreaming with selected variables: size and location of school; and

4) Make recommendations as to ways to overcome the barriers to mainstreaming identified in the study.

A knowledge base of administrator, teacher, and principal attitudes toward mainstreaming the handicapped in occupational education has been developed. Needs in the area of mainstreaming and barriers to mainstreaming the handicapped in occupational education have been identified. The information derived should be beneficial to North Carolina occupational education programs for program planning and in-service teacher education programs stressing mainstreaming the handicapped in occupational education.

II. Method of Approach

Overview

The study addressed the problem of identifying needs and barriers to mainstreaming by accepting the following assumptions:

1) Mainstreaming is a complex philosophical, administrative and technical problem in the ecology of public schools;

2) The perceptions of the teachers, principal and other staff in each school are the primary sources of information about what the problems in implementing mainstreaming will be; i.e., needs and barriers that exist or those that are perceived to exist;

3) Barriers to mainstreaming must be reduced if it is to be successfully implemented;

4) Major barriers to mainstreaming, if known and understood, can be reduced through in-service education of teachers, principal and staff, and other strategies;

5) Training curriculum must be based on perceived needs and barriers; and,

6) A general base of knowledge on teacher and administrator perceived needs and barriers to mainstreaming would be useful in developing technical assistance programs and for program planning.

The overall design of the project involved a three-phase research effort. The first phase utilized the Delphi Technique with local occupational education program administrators to assess needs and identify barriers. The final output of this procedure provided the content base for a "Questionnaire on Mainstreaming" which was used in surveying principals and teachers. The second phase included a survey of attitudes of principals of high schools in which occupational education programs were offered. The third phase assessed teacher attitudes toward mainstreaming of the handicapped in occupational education.

Phase I: Assessment of Needs and Identification of Barriers by Local Occupational Education Directors

This first phase utilized the Delphi technique (Delbecq, Van de Ven and Gustafson, 1975) with local occupational education directors to assess needs and identify barriers.

The Delphi procedure is a group communications process which facilitates interaction among individuals who cannot physically meet in the same place at the same time. In the administration of the Delphi, an initial open-ended questionnaire is sent to a panel of respondents in which they are asked to generate ideas and comments about the particular issue under consideration.

In the first round of the Delphi procedure, each of the panel members was given a questionnaire package which included an introductory letter, an overview of the study, specific instructions for completing Questionnaire #1, a one-page abstract of the project, and a five-page background information document. The Delphi statement was as follows:

> Given the goal of mainstreaming handicapped students in regular (job entry skill training) occupational education programs, list the needs which you feel have to be met and the barriers you feel must be overcome if mainstreaming programs are to be successful.

The panel of local occupation education directors included 26 randomly selected local directors. At the time of the study, North Carolina had 92 local directors in secondary occupational education programs. After the initiation of Phase I, two local directors notified project staff that they would not be able to participate in the survey. These were not replaced. Of the 24 remaining, 23 participated in the first round of the Delphi and all participated in the second round of the Delphi.

A majority of the local directors received their educational training and had previous teaching experience in agriculture (35%) or trade and industrial (30%) programs. The remainder were scattered among distributive education, health, occupational home economics, business education and industrial arts. The majority of panel respondents had over five years of previous administrative experience; and, four (17%) had over 10 years previous administrative experience. Forty-one percent, 10 of the panel members responding, had 5 years or less previous administrative experience.

Of the responses to Questionnaire #1, a total of 177 needs statements and 203 barrier statements were received.

A framework for categorizing responses was developed related to various aspects of program operation. In the analysis of these data, duplicate and similar responses were identified and the 177 initial statements of need were reduced to 74 and the 203 initial barrier statements were reduced to 73.

The data were passed through a second time. The assimilation of this information involved three project staff independently categorizing and summarizing statements during each pass. Differences between independent judgments were then resolved to arrive at a final list of 43 needs statements and 42 barrier statements which were used to design Questionnaire #2.

In the second round of the Delphi procedure, the panel of respondents reviewed the needs statements and barrier statements, ranked them in priority, and made additional comments about each item. The response rate to Questionnaire #2 was 100% (24 out of the 24 panel members). The voting on Questionnaire #2 was tabulated and, from the results obtained, the third questionnaire was designed and prepared for mailing during early January, 1977.

In the third and final round, panel members were provided a summary analysis of responses to Questionnaire #2. Tabulations of responses to each statement were presented showing: (1) percentage of panel members agreeing with the statement, (2) percentage of panel members disagreeing with the statement, (3) the number of panel members who voted for the statement in round two, (4) the vote count for each statement, (5) total vote for each statement, (6) priority ranking of each statement, and (7) a summary of comments made by panel members about each statement.

Panel members reviewed the final set of needs statements and barrier statements and cast their final votes for the items they considered to be the most important. Priority voting, "1" through "10" in order of importance, was done for the top ten needs statements and the top ten barrier statements.

Responses to Questionnaire #3 were received from 23 of the 24 panel members. (One panel member received a job promotion during this period and was unable to complete the questionnaire due to limited time.)

A report on Phase I of the study was prepared and submitted as a separately bound interim project report to the contracting agency. This Phase I report was also disseminated to state, area and local occupational education personnel in North Carolina and selected individuals around the country.

Design and Field Testing of the Questionnaire on Mainstreaming

The administration of the Delphi procedure with local occupational education directors resulted in the identification and priority ranking of 37 needs and 32 barriers (See Appendix A). The information obtained was used by project staff to design a questionnaire on mainstreaming that was included in the mail survey of secondary principals and occupational education teachers in Phases II and III of the study. The questionnaire on mainstreaming was designed to reflect the needs and barriers identified by local directors, with similar emphases among program areas. The questionnaire on mainstreaming, referred to as the *M-Scale*, contained 43 statements to which the respondent indicated extent of agreement or disagreement on a 6 point Likert-type scale.

The field test of the questionnaire on mainstreaming, the *M-Scale*, involved 10 principals and 40 teachers who were selected at random from the pool of teachers and principals not previously selected for the Phases II and III survey samples. The field test participants were sent a copy of the *M-Scale* with a reaction sheet on which they indicated the amount of time it took to complete the questionnaire, identified items felt to be ambiguous and/or redundant, and indicated significant content areas which the questionnaire did not address. The response from participants in the field test phase fell below 50%. An additional review of the questionnaire by a panel of five professional education researchers not directly involved in the research study was made. Based on the results of these efforts, the original 43 items were modified, and several of the items were deleted. This resulted in a 39-item questionnaire, which was used in the survey of principals and teachers in Phases II and III of the project.

Instrumentation

In addition to the questionnaire on mainstreaming, three other attitude and opinion measures were included in the surveys of principals and teachers. These included:

a) The Attitudes Toward Handicapped Individuals scale (ATHI);
b) Kerlinger's Education Scale VII (ESVII); and,
c) Change Orientation Instrument (COI).

The Attitudes Toward Handicapped Individuals scale (Lazar, 1973) was purported to measure the level of one's acceptance of handicapped persons. Lazar adapted the ATHI from the Attitudes Toward Disabled Persons scale by Yuker, Block, and Campbell (1960). The extent of the revision was to change the word "disabled" to "handicapped." The concept change from disabled to handicapped was made on the assumption that the latter term was more generalized in meaning, thus affording the opportunity to study attitudes toward other handicapped groups in addition to the physically disabled.

The ATHI has been reported as having a correlation coefficient of $r = 0.802$ with the ATDP ($p < 0.01$) and coefficient of stability of 0.732, using a test-retest design over a two-week period (Lazar and Stodden, 1977).

The ATHI contained 20 items, each rated on a six-point Likert-type scale ranging from -3 , "I disagree very much" to +3, "I agree very much." It was scored by changing the signs of items 2, 5, 6, 11, and 12 and totaling the 20 responses. The sign of the sum was changed and a constant of 60 was added. The possible score ranged from 0 to 120. The ATHI scale scores were interpreted by inferring non-acceptance and lack of understanding of the handicapped for low scores, and acceptance and understanding of the handicapped for high scores. Seventy points has been suggested by the author (Lazar, 1973) as the division between acceptance and nonacceptance of handicapped persons. The ATHI was used in the survey of teachers only.

The Education Scale VII permitted description of school staff personnel as either "curriculum oriented" (traditional) or "child oriented" (progressive) (Kerlinger, 1967).

The ES VII was a 30-item instrument with 15 A (Progressive) items and 15 B (Traditional) items, each rated on a six-point Likert-type scale ranging from + 3, "agree very stongly," to -3, "disagree very strongly." The responses to the 15 traditional items were summed algebraically. The responses to the 15 progressive items were summed algebraically. A difference score was computed, subtracting the traditional score from the progressive score, providing a possible score range from -90 to +90. Negative scores indicated a traditionalistic orientation to education, with the absolute value indicating the strength of the traditionalistic orientation. Positive scores indicated a progressive orientation to education, with the absolute value indicating the strength of the orientation to progressivism. The ES VII was used in surveying both principals and teachers.

The COI scale was a 21-item instrument designed to measure the change orientation of vocational teachers, and to identify vocational teachers who are likely to be first to implement changes in instructional programs (Russell, 1972). "Known groups" of vocational teachers representing "early adopters" and "laggards" in 38 states, with 125 in each group, comprised the sample for Russell's study. Russell concluded from the study that change orientation is a measureable characteristic of vocational teachers with some demonstrable validity. A 21-item general factor scale was identified by factor analysis and was found to be a powerful discriminator between the groups and an efficient and effective measure of change orientation in vocational teachers.

Russell (1972) points out that the COI was found to have a Kuder-Richardson (Formula 8) reliability of .91. Evidence from other studies was very much in favor of the instrument's validity and reliability. Kester (1973) reported a .92 reliability coefficient (Cronbach's alpha) Based on 737 COI scores, Lukers (1973 gave a reliability coefficient (Cronbach's alpha) of .83. Scores on the COI range from 21-126, with low scores indicating resistance to change and high scores indicating positive orientation to change. The COI Scale was referred to as the Vocational Teacher Opinion Questionnaire in the survey, and was used in the survey of teachers.

Phase II: Survey of Principals

Principals of secondary schools that included occupational education in their curriculum offerings were surveyed. Paul (1974), in an unpublished evaluation of mainstreaming in two large junior high schools in an urban center, noted the importance of the principal's support in the total ecology of the mainstreaming activity. According to Paul, the principal's role was central in administratively orchestrating as well as psychologically facilitating the "fit" between the mainstreaming goals and the political, economic, social, and educational readiness in the school to implement those goals.

Payne and Murray (1974) studied the attitudes of principals toward the integration of handicapped children into regular classrooms. Accepting the importance of the building principal in bringing about changes involved in mainstreaming, they compared the attitudes of 50 urban and 50 suburban principals relative to: (1) the placement of handicapped children in the regular classroom, (2) categories of handicapped children they felt could be integrated, (3) the kinds of supportive services that would be required, and (4) the teacher competencies that would be needed. They found that while urban and suburban principals differed significantly in their attitudes toward placement, they did not differ significantly in their attitudes toward the categories of children that could be integrated, the supportive services needed, or the teacher competencies required. Payne and Murray concluded that the suburban principal was more willing to assume the integration role than the urban principal.

The selection of the sample of principals utilized a stratified random sampling technique blocking for two variables: (1) the location of the school, i.e., urban or rural, and (2) the pupil enrollment size, i.e., less than 1000 and 1000 or more. From the 464 secondary schools which offered occupational education, a total of 151 principals was selected for the sample. The distribution was as follows:

Rural setting - enrollment greater than 1000 ----	26
Urban setting - enrollment less than 1000 -------	36
Urban setting - enrollment greater than 1000 ----	33
Rural setting - enrollment less than 1000 -------	56

The following information was obtained on variables for the sample of principals.

1) Age [actual age in number of years and by categories: (1) under 25, (2) 25-34, (3) 35-44, (4) 45-54, (5) 55 and over]
2) Sex
3) Experience as Principal [actual number of years and categories: (1) 5 years or less, (2) 6-10 years, (3) 11-15 years, (4) 16-20 years, (5) over 20 years]
4) Experience as Teacher [actual number of years and categories: (1) 5 years or less, (2) 6-10 years, (3) 11-15 years, (4) 16-20 years, (5) over 20 years]
5) Teaching area (occupational education/other)
6) Education level [highest education level: (1) bachelors, (2) masters, (3) masters plus, (4) doctorate]
7) Experience with handicapped [(1) previous experience (yes/no), (2) favorable/unfavorable (yes/no), (3) adults (yes/no), (4) children (yes/no), (5) professional (yes/no), (6) personal (yes/no), (7) sum of experience]
8) Enrollment size of school [(1) less than 1000, (2) more than 1000]

9) School environment [(1) urban, (2) rural]
10) Education Scale VII
11) Attitude toward mainstreaming, sub-scale of the M-Scale
12) Perceptions of needs as measured by the M-Scale
13) Perceptions of barriers as measured by the M-Scale
14) Perceptions of related items as measured by the M-Scale.

All of the above data were collected by mail survey of secondary principals. The questionnaire package mailed to principals included:

1) a cover letter introducing the study, along with instructions for completing the questionnaire package;
2) an information sheet requesting personal and biographical data,
3) Kerlinger's Education Scale VII; and,
4) the questionnaire on mainstreaming, the M-Scale.

A copy of the questionnaire packet mailed to secondary school principals is attached to this report as Appendix B.

Phase III: Survey of Occupational Education Teachers

The survey of occupational education teachers in North Carolina was limited to those instructors in preparatory occupational training programs. This emphasis was a conscious project decision. Of the enrollment in vocational education throughout the country, it was found 63% of handicapped students were enrolled in nonskills training courses (Olympus Research Corporation, 1974). The attitudes of instructors in preparatory programs are crucial to mainstreaming of handicapped students into vocational skill training programs.

In North Carolina's occupational education system, skill training programs were generally offered in the 11th and 12th year. The sample of teachers surveyed was drawn from 2,889 occupational education teachers providing job entry-level skill training, blocking on the variable of occupational program area.

Attitude and opinion measures included:

a) The Attitudes Toward Handicapped Individuals scale (ATHI);
b) Kerlinger's Education Scale VII (ESVII);
c) Change Orientation Instrument (COI); and,
d) A questionnaire on mainstreaming, the M-Scale.

In addition to the attitude and opinion measures, the following information was also obtained on the occupational education teacher sample.

1) Occupational program area (Agriculture, Business and Office, Distributive Education, Health Occupations, Occupational Home Economics, Trade and Industrial, and Industrial Arts)
2) Age [actual number of years and by age category: (1) <25, (2) 25-34, (3) 35-44, (4) 45-54, (5) 55+]
3) Sex
4) Education level [highest education level: (1) high school or less, (2) post-secondary technical, (3) bachelor's degree, (4) master's degree, (5) master's degree plus, (6) doctor's degree]
5) Occupational teaching experience [actual number of years and by category: (1) 5 years or less, (2) 6-10 years, (3) 11-15 years, (4) 16-20 years, (5) over 20 years]
6) Experience with handicapped [(1) previous experience (yes/no), (2) favorable/unfavorable (yes/no), (3) adults (yes/no), (4) children (yes/no), (5) professional (yes/no), (6) personal (yes/no), (7) sum of experience]
7) Enrollment size of school [(1) less than 1000, (2) more than 1000]
8) School environment [(1) urban, (2) rural]

All of the above data were collected by mail survey of occupational education teachers.

The questionnaire package mailed to occupational education teachers selected in the sample included the following:

1) a cover letter introducing the study, along with instructions for completing the questionnaire package,
2) an information sheet requesting personal and biographical data,
3) Kerlinger's Education Scale VII,
4) Attitudes Toward Handicapped Individuals scale,
5) Change Orientation Instrument, referred to as the Vocational Teacher Opinion Questionnaire in the survey, and
6) the questionnaire on mainstreaming, the M-Scale.

A copy of the questionnaire packet mailed to occupational education teachers is attached to this report as Appendix C.

Data Collection, Preparation and Analysis

Questionnaire packets were sent to principals and teachers who were selected using stratified random sampling procedures described earlier in this report. Table 1 indicates for principals, and for teachers by occupational program area, the total population, the size of the selected sample, the number of survey respondents and the percent responding.

TABLE 1

POPULATION, SAMPLE, RESPONDENTS

	Population	Sample	# Received	% Received
Principals	464	151	101	67
Business & Office	285	100	66	66
Agriculture	496	146	89	61
Distrib. Ed.	275	97	59	61
Occup. Home Ec.	243	82	53	65
Health Occup.	131	53	36	68
Ind. Arts	40	40	32	80
Trade & Industry	1419	400	233	58
(Total Teachers)	(2889)	(918)	(568)	(62)
Total	3353	1069	669	63

Of the 151 principals included in the sample, 101 returned questionnaire packets. This represented a 67% response rate. Of the 918 occupational education teachers included in the sample, 568 returned completed questionnaire packets, a 62% response rate.

Response rates among teachers by occupational program area ranged from 58% for Trade and Industrial Education teachers to 80% for Industrial Arts teachers. Project staff sought to achieve a 70% response rate among all groups. For the principals, and for six of the teacher groups, this response level was not achieved. Overall, 669 or 63% of those surveyed returned the questionnaire packets. To insure the highest possible return rate, "reminder" postcards were mailed within ten days of the original mailing to 750 of the participants. Follow-up phone calls were made to over 225 participants after the requested return date had passed. One possible reason for not achieving the target response level was the time of the school year in which the survey questionnaires were mailed out. This was done in early May, perhaps too close to end of school year. It is possible that a higher response rate would have been obtained had the mailing been done two to four weeks earlier. No follow-up survey of "non-respondents" was conducted.

Preparation of data for analysis involved coding information obtained from the information sheet, hand scoring or machine scoring of the questionniares, and the design of scoring procedures for the questionnaire on mainstreaming, the M-Scale.

The ATHI and COI scales were scored by hand. For these two survey instruments, missing response items were handled by forcing the mean response score of the individual, provided that the number of missing items was five or less. If the number of missing items was more than five, the scale was considered unscorable. This procedure was used for 33 of the responding teachers on the ATHI scale and for 33 of the responding teachers on the COI, about 6%. From the 568 questionnaire packets returned by teachers, 546 ATHI forms and 552 COI forms were usable.

The ES VII scale was scored using a computer program written by Dr. Roy Sommerfeld, University of North Carolina at Chapel Hill. From the returned forms, 562 were scorable and usable for data analysis from the teacher sample group and 99 of 101 returns were scorable and usable for data analysis from the principal sample group.

Scoring Procedures for M-Scale

Both statistical and logical analyses of items on the M-Scale were applied to determine the most appropriate scoring procedure. Statistically, several factor analytic solutions were investigated, using both principal component and alpha factoring procedures with varimax and oblique rotations. None of the factor solutions obtained were considered acceptable due to widely dispersed variance, difficulty in interpretation, and the potential masking of meaningful information resulting from aggregating the variables into factor scores. However, one factor emerged which was interpretated as "attitude toward mainstreaming" and found potentially useful in discriminating between respondents accepting of mainstreaming as an educational philosophy and practice and respondents rejecting of mainstreaming as an educational philosophy and practice. Given the inconclusive results of the factor analyses, a logical approach was employed. Five professional education researchers, judging independently, categorized items on the M-Scale into attitude, needs and barrier items. An 80% level of agreement was required for an item to be classified into one of the three categories. The following procedure for scoring the M-Scale was employed as a result of this process.

Eight items were identified as tapping teacher/principal attitudes toward mainstreaming as an educational philosophy and practice. These included items 2, 7, 9, 17, 19, 25, 30, and 37. These items were scored as a sub-scale, reversing the scores on items 9 and 30, before aggregation. The resulting score served as a measure of "attitude toward mainstreaming." Scores ranged from 8-48. A low score indicated an acceptance of mainstreaming as an educational philosophy and practice and a high score indicated opposition to mainstreaming.

Fourteen items were related to needs which must be met if mainstreaming is to be successfully implemented. These included items 1, 5, 8, 10, 12, 26, 27, 29, 31, 32, 34, 35, 36, and 38. These items were scored individually and treated separately in the statistical analysis.

Eleven items were related to barriers which must be overcome if mainstreaming practices are to be implemented effectively. These include items 3, 4, 6, 14, 15, 16, 20, 22, 24, 28, and 39. These items were scored individually and treated separately in the statistical analysis.

Related items, not categorized as either attitude, needs, or barrier items, included items 11, 13, 18, 21, 23, and 33. These items were scored individually and included in the analysis.

In scoring the eight item sub-scale which served as a measure of "attitude toward mainstreaming," missing response items were handled by forcing the mean response score of the individual, provided that the number of missing items was not more than two. If the number of missing items was more than two, the sub-scale was considered unscorable. This procedure was used for 25 of the teachers and four of the principals. From the 568 questionnaires returned by teachers, 548 sub-scales were scorable and usable for data analysis. From the 101 questionnaires returned by principals, 99 sub-scales were scorable and usable for data analysis.

Research Questions

A series of research questions were formulated to specifically assess principal and teacher attitudes and perceptions of needs and barriers to mainstreaming. The formulation of the research questions was done in keeping with the major objectives of the research study. The research questions posed were as follows:

1. What are the demographic characteristics of the teacher respondents?
2. What are the attitudes toward mainstreaming of occupational education teachers?
3. What do occupational teachers perceive as needs prior to mainstreaming?
4. What do occupational teachers perceive as barriers to mainstreaming?
5. Are there differences in perception of needs prior to mainstreaming which are related to teacher program area, size of school and location of school?
6. Are there differences in perception of barriers to mainstreaming which are related to teacher program area, size of school and location of school?
7. Is there a relationship between teacher attitude toward mainstreaming and the occupational program area of the teacher, size of school, location of the school?
8. Is there a relationship between teacher attitude toward mainstreaming and teacher educational orientation (ES VII), teacher acceptance of the handicapped (ATHI), and the change orientation of teachers?
9. What are the demographic characteristics of the principal respondents?
10. What are the attitudes toward mainstreaming of high school principals?
11. What do high school principals perceive as needs prior to mainstreaming?
12. What do high school principals perceive as barriers to mainstreaming?
13. Are there differences in perception of needs prior to mainstreaming which are related to the size of the school and the location of the school?
14. Are there differences in perception of barriers to mainstreaming which are related to the size of the school and the location of the school?

15. Is there a relationship between principals' attitudes toward mainstreaming and the size of the school, location of the school?

16. Are there differences between teachers' attitudes toward mainstreaming and their perceptions of mainstreaming needs and barriers and principals' attitudes toward mainstreaming and their perceptions of mainstreaming needs and barriers?

Statistical Procedures

Questions 1, 2, 3, 4, 9, 10, 11, and 12 required scoring of the instruments and calculation and tabulation of summary descriptive statistics.

Questions 5, 6, 7, 8, 13, 14, and 15 suggested a factorial analysis of variance design. Multiple and one-way analysis of variance procedures were applied to test the null hypothesis for research questions 5, 6, 8, 13, and 14. For these analyses subprograms ANOVA and ONEWAY, available in the Statistical Package for the Social Sciences (SPSS), were used (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975). Multivariate analysis of variance procedures, using Cramer's MANOVA program (Triangle Universities Computation Center, 1971), were applied to test for relationships suggested in research questions 7 and 15. Cramer's program provides within cells correlation coefficients between multiple criterion variables.

The analysis for testing significance of differences between teachers' attitudes and perceptions and principals' attitudes and perceptions (question 16) was done by applying a t'-test for groups of unequal size (Snedecor and Cochran, 1967).

III. Results

Description of the Teacher Respondents

Table 2 presents a comparison of the responding teachers with the teacher population. This comparison was made to determine how adequately the sample respondents reflected the population for the major variables of school environment, school enrollment and occupational program area. Chi square statistics were computed to test for significant differences between the respondent group and population for each of these variables. For the first variable, school environment, $\chi^2 = 0.57$, and was not significant (.05,3). For the second variable, school enrollment, $\chi^2 = 6.14$, and was not significant (.05,5). For the third variable, occupational program area, $\chi^2 = 88.78$, and was significant (.05,6). The significance is accounted for by the 100% sample and 80% response rate of Industrial Arts teachers. This modification to the stratified random sample selection procedure was made to insure that a minimum number of responses would be received from this relatively small sub-group of the population in order to permit their inclusion in the factorial design analysis of variance procedures. To determine whether or not this induced bias in the sample selection process had any effect on the data results, a random sample of the population of Industrial Arts teachers was made (12 selected, 8 of whom were respondents in the survey). The data for the newly derived sample of 544 occupational education teachers were then computed and comparisons of means for each variable were made against the sample of 568 teachers. No significant or even appreciable differences were found.* The results of this comparison provided sufficient justification to report on the larger group (N = 568), on the assumption that this respondent group is representative of the population of occupational education teachers in the state.

Table 3 presents a descriptive summary of the teacher data for selected variables, including: age, sex, vocational teaching experience,

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*Data comparisons available from the author upon request.

TABLE 2

TEACHER RESPONDENTS COMPARED TO TEACHER POPULATION

		Teacher Respondents			Teacher Population		
		N	%		N	%	
SCHOOL LOCATION							
Urban	1	113	19.9	290 51.1%	613	21.2	1495 51.8%
	2	102	18.0		497	17.2	
	3	75	13.2		385	13.3	
Rural	4	273	48.9		1,394	48.2	
		568	100.0		2,889	100.0	
ENROLLMENT SIZE OF SHCOOL							
Less 1,000	1	27	4.8	262 46.1%	111	3.8	1303 45.1%
	2	235	41.4		1,192	41.3	
More 1,000	3	217	38.2	306 53.9%	1,048	36.3	1586 54.9%
	4	58	10.2		372	12.9	
	5	30	5.3		152	5.3	
	6	1	0.2		14	0.5	
		568	100.0		2,889	100.0	
OCCUPATIONAL PROGRAM AREA							
Business	1	66	11.6		285	9.9	
Agricul.	2	89	15.7		496	17.2	
Home Ec.	3	59	10.4		243	8.4	
D. E.	4	53	9.3		275	9.5	
T & I	5	233	41.0		1,419	49.1	
Ind. Arts	6	32	5.6		40	1.4	
Health	7	36	6.3		131	4.5	
		568	100.0		2,889	100.0	

TABLE 3

TEACHER RESPONDENTS - DESCRIPTIVE SUMMARY

	Variable	N	Relative %	Adjusted %
Age:	Under 25	20	3.5	3.7
	25 - 34	147	25.9	27.2
	35 - 44	137	24.1	25.3
	45 - 54	165	29.0	30.5
	55 and over	72	12.7	13.3
	No Data	27	4.8	*
Sex:	Male	353	62.1	65.2
	Female	188	33.1	34.7
	No Data	27	4.8	*
Vocational Teaching Experience:	5 years or less	203	35.7	37.2
	6-10 years	152	26.8	27.9
	11-15 years	114	20.1	20.9
	16-20 years	24	4.2	4.4
	Over 20 years	52	9.2	9.5
	No Data	23	4.0	*
School Location:	Urban	290	51.1	51.1
	Rural	278	48.9	48.9
School Enrollment:	Less than 1000	262	46.1	46.1
	More than 1000	306	53.9	53.9
Program Area:	Agriculture	89	15.7	15.7
	Business & office	66	11.6	11.6
	Distributive Ed.	53	9.3	9.3
	Health Occupations	36	6.3	6.3
	Industrial Arts	32	5.6	5.6
	Occupational Home Economics	59	10.4	10.4
	Trade & Industrial	233	41.0	41.0
Education:	High School or Less	51	9.0	9.4
	Post-Sec. Tech.	94	16.5	17.3
	Bachelor's Degree	256	45.1	47.0
	Master's Degree	82	14.4	15.1
	Master's Degree Plus	60	10.6	11.0
	Doctor's Degree	1	0.2	0.2
	No Data	24	4.2	*
Experience with Handicapped:	Yes	362	64.0	66.8
	No	180	32.0	33.2
	No Data	26	5.0	*

* Denotes that missing data were not included in the percentage calculation.

school location, school enrollment, occupational program area, education, and previous experience with the handicapped.

The average age of teachers was 41.7 years, ranging from 22 to 64. Over 60% of the teachers in the sample were male, at almost a 2:1 ratio of males over females. The number of years teaching experience in vocational education ranged from one to 39 years, with an average of 9.7 years of vocational teaching experience. The teachers were balanced in terms of location, with slightly more than half teaching in schools located in urban areas, and slightly less than half located in rural areas. Urban setting was defined as being within an SMSA, or in an urban place with population greater than 10,000. A rural location was defined as being located outside an urban place with a population less than 10,000. A majority of the teachers, 306 compared to 262, taught in secondary schools with enrollments greater than 1,000 students.

The largest number of teachers were in the Trade and Industrial program area (41.0%). Agriculture, Business and Office and Occupational Home Economics each represented 10% or more of the total group. Distributive Education, Health Occupations and Industrial Arts each had less than 10% of the teachers in the respondent group.

Approximately three-fourths of the teachers had completed formal education at the bachelors level or above, with 82 (14.4%) holding a master's degree and 61 (10.8%) completing work beyond the master's degree. Of the remaining quarter of the teachers, 94 had completed technical training at the post-secondary level, and 51 or 9% had received a high school education or less. The largest percentage of the teachers (256 or 45.1%) held the bachelors degree.

The majority of the teachers had previous experience with the handicapped--362 out of 568, or 64%. Of the 362 teachers who indicated that they had previous experience with handicapped persons,

- 319 or 88% indicated that the experience had been "favorable";
- 33 or 9% indicated that their previous experience had been "unfavorable";

- 10 or 3% did not indicate either favorable or unfavorable experiences;
- 151 had previous experience with handicapped adults (42%);
- 316, or 87%, had previous experience with handicapped children;
- 123 indicated that they had experience with handicapped persons in a professional capacity; and
- 85 indicated that they had experiene with handicapped individuals on a personal level.

The most common trend for teachers, in terms of previous experience with the handicapped, was favorable experience with children in a professional capacity.

Teacher Scores on Attitude Measures

Teacher respondents' scores on the four attitude measures are shown in Table 4. The attitude measures included the Attitudes Toward Handicapped Individuals scale, the Change Orientation Instrument, the Education Scale VII, and a sub-scale of items from the M-Scale, which purported to measure teacher's attitude toward mainstreaming handicapped students in regular occupational education programs providing entry-level skill training.

Teacher scores on the ATHI scale ranged from 35 to 114, with a mean score of 76.5. A score of 70 has been suggested by the author as the cut-off score for differentiating between acceptance and non-acceptance of handicapped individuals. As a group, the occupational education teachers tended to be accepting of handicapped individuals.

Teacher scores on the COI scale ranged from 43-126, with a mean score of 96.2. The possible range of scores for this instrument was 21-126. Higher scores indicated a positive orientation toward change and lower scores indicated resistance to change. The author of this scale suggested that lower scores tended to identify "laggards" while higher scores tended to identify "early adopters," or "innovators" (Russell, 1972).

TABLE 4

TEACHER RESPONDENTS' SCORES ON ATTITUDE MEASURES

ATTITUDE MEASURE	N	$\bar{X}$	S.D.	RANGE
Attitudes Toward Handicapped Individuals Scale	546	76.5	14.06	35 to 114
Change Orientation Instrument	552	96.2	13.31	43 to 126
Education Scale VII				
Progressivism	562	20.45	9.96	- 8 to +45
Traditionalism	562	17.66	10.82	-27 to +44
Difference	562	2.78	13.45	-51 to +60
Attitude Toward Mainstreaming	548	27.6	5.7	9 to 44

The Education Scale VII provided three scores. One score related to a major factor labeled "progressivism"; a second score related to a major factor labeled "traditionalism"; and a third was computed by subtracting the subject's score on the "traditionalism" sub-scale from the subject's score on the "progressivism" sub-scale, or a "difference" score. Scores on the two sub-scales had a possible range from -45 to +45. The "difference" score had a possible range from -90 to +90. The mean "difference" score of 2.78 suggested that the occupational education teachers, as a group, tended toward a progressive orientation to education.

The sub-scale from the Questionnaire on Mainstreaming (M-Scale) which purported to measure attitudes toward mainstreaming had a possible score range from 8 to 48. A low score indicated acceptance of mainstreaming as an educational philosophy and practice, and a high score indicated rejection of mainstreaming. Scores obtained from the responding teachers ranged from 9 to 44, with a mean score of 27.6. As a group, the occupational education teachers appeared to be neither accepting nor rejecting of the mainstreaming approach.

Description of the Principal Respondents

Table 5 presents a comparison of the respondents from the sample of principals with the principal population. This comparison was made to determine how adequately the respondents reflected the population for the major variables of school location and school enrollment. Chi square statistics were computed to test for significant differences between the respondents and the population for these two variables. For the first variable, school location, $\chi^2 = 1.25$ and was not significant (.05,3). For the second variable, school enrollment, $\chi^2 = 2.64$ and was not significant (.05,5). The respondents adequately reflected the principal population on these two major variables, and provided sufficient confidence in generalizing to the population of principals in the state.

TABLE 5

PRINCIPAL RESPONDENTS COMPARED TO PRINCIPAL POPULATION

		Principal Respondents			Principal Population		
		N**	%		N	%	
SCHOOL LOCATION							
Urban	1	15	15.2	47 47.6%	84	18.1	218 47.0%
	2	17	17.2		78	16.8	
	3	15	15.2		56	12.1	
Rural	4	52	52.5		247	53.0	
		99	100.1*		465	100.0	
ENROLLMENT SIZE OF SCHOOL							
Less 1,000	1	7	7.1	64 63.9%	53	11.4	305 65.6%
	2	57	57.6		252	54.2	
More 1.000	3	29	29.3	35 36.1%	122	26.2	160 34.4%
	4	5	5.1		27	5.8	
	5	1	1.0		10	2.2	
	6	0	0		1	0.2	
		99	100.1		465	100.0	

*Does not add to 100% due to rounding.

**Two of the 101 responding administrators could not be identified as to their school location and enrollment categories.

Table 6 presents a descriptive summary of the respondents in the principal sample for selected variables, including: age, sex, teaching experience, teaching subject, school location, school enrollment, educational level, experience as a principal, and previous experience with handicapped persons.

The average age of principals was 44.7 years, and ranged from 28 to 59. Almost 98% of the principals in the group were male; only two of the 95 principals responding to this item checked female. The number of years teaching experience ranged from one to 21 years, with an average of 8.8 years. Only 14.7% of the principals responding had experience in teaching occupational education.

The principals were balanced in terms of location, with 47.5% of the respondents administering schools located in urban areas, and 52.5% administering schools located in rural areas. Urban setting was defined as being within an SMSA or in an urban place with population greater than 10,000. A rural location was defined as being located outside an urban place with population less than 10,000. A majority of the principals (64.6%) administered secondary schools with pupil enrollments less than 1,000 students.

Slightly over three-fourths of the principals had received formal education beyond the master's degree level. None of the respondents held less than a master's degree. The principals averaged 10.5 years administrative experience, ranging from one to 28 years experience. Almost 80% of the respondents had six years or more experience. Almost four out of five (78.9%) of the responding principals had previous experience with the handicapped.

Of the 75 principals who indicated they had previous experience with handicapped persons,

- 73 indicated that this experience was "favorable";
- 2 indicated that this experience was "unfavorable";

TABLE 6

PRINCIPAL RESPONDENTS - DESCRIPTIVE SUMMARY

	Variable	N	Relative %	Adjusted %
Age:	Under 25	1	1.0	1.1
	25 - 34	10	9.9	10.5
	35 - 44	33	32.7	34.7
	45 - 54	42	41.6	44.2
	55 and over	9	8.9	9.5
	No Data	6	5.9	*
Sex:	Male	93	92.1	97.9
	Female	2	2.0	2.1
	No Data	6	5.9	*
Teaching Experience:	5 years or less	31	30.7	33.0
	6 - 10 years	36	35.6	38.3
	11 - 15 years	13	12.9	13.8
	16 - 20 years	12	11.9	12.8
	Over 20 years	2	2.0	2.1
	No Data	7	6.9	*
Teaching Subject:	Occupational Education	14	13.9	14.7
	Other	81	80.2	85.3
	No Data	6	5.9	*
School Location:	Urban	47	46.5	47.5
	Rural	52	51.5	52.5
	No Data	2	2.0	*
School Enrollment:	Less than 1000	64	63.4	64.6
	More than 1000	35	34.7	35.4
	No Data	2	2.0	*
Education:	Master's Degree	20	19.8	21.1
	Master's Degree Plus	74	73.3	77.9
	Doctor's Degree	1	1.0	1.1
	No Data	6	5.9	*
Experience as Principal:	5 years or less	20	19.8	21.1
	6 - 10 years	36	35.6	37.9
	11 - 15 years	17	16.8	17.9
	16 - 20 years	10	9.9	10.5
	Over 20 years	12	11.9	12.6
	No Data	6	5.9	*
Experience with Handicapped:	Yes	77	76.2	79.4
	No	20	19.8	20.6
	No Data	4	4.0	*

* Denotes that missing data were not included in the percentage calculation.

- 2 did not indicate either "favorable" or "unfavorable" experience;
- 30 had experience with handicapped adults;
- 73 had experience with handicapped children;
- 26 had previous experience with handicapped individuals in a professional capacity; and,
- 17 had previous experience with handicapped individuals on a personal level.

The discrepancy between contact or experience with handicapped children and/or adults and the nature of the contact or experience may be explained, in part, by the principals' feeling that their contact or experience was not sufficient in intensity or duration to be classified as either personal or professional.

Principals' Scores on Attitude Measures

Principal group mean scores on the two attitude measures are shown below in Table 7. The attitude measures include the Education Scale VII, and a sub-scale of items from the questionnaire on mainstreaming, which purported to measure the principals' attitudes toward mainstreaming handicapped students in regular occupational education programs providing entry-level skill training.

The Education Scale VII provided three scores. One score measured a major factor labeled "progressivism"; a second score related to another major factor labeled "traditionalism"; the third score was computed by subtracting the "traditionalism" score from the "progressivism" score. Scores on the two sub-scales (traditionalism and progressivism) had a possible range from -45 to +45. The difference score had a possible range from -90 to +90. The large mean "difference" score ($\bar{x} = 9.77$) suggested that the principals, as a group, tended toward a progressive orientation to education.

The sub-scale from the Questionnaire on Mainstreaming (M-scale) measured attitudes toward mainstreaming and had a possible score range from +8 to +48. Scores obtained from the principal respondents ranged from +15 to +46, with a mean score of 27.50. A low score indicated acceptance of mainstreaming as an educational philosophy and practice and a high score indicated rejection of mainstreaming. Principals were neither accepting nor rejecting of the mainstreaming approach.

TABLE 7

PRINCIPAL RESPONDENTS' SCORES ON ATTITUDE MEASURES

Attitude Measure	N	$\bar{X}$	SD	Range
Education Scale VII				
Progressivism	99	22.46	10.28	- 9 to +45
Traditionalism	99	12.69	10.90	-14 to +38
Difference	99	9.77	14.18	-42 to +45
Attitude Toward Mainstreaming	99	27.50	5.32	+15 to +46

Teachers' Perceptions of Mainstreaming: Needs, Barriers and Related Items

Teachers' perceptions of mainstreaming needs, barriers and related items, as measured by extent of disagreement or agreement, are presented in Table 8. The needs and barrier statements are listed in descending order on the basis of the mean value and numbered sequentially. The higher the mean value score, the greater the agreement among the teachers as a group with the need or barrier statement. Related items are also listed in this manner.

Occupational education teachers, as a group, expressed agreement with all of the 14 statements of need. The extent of agreement ranged from a mean score of 5.387, moderate to strong agreement, to 4.052, mild agreement.

There was less agreement among the teachers' perceptions of the barrier statements. As a group, the teachers expressed agreement with eight of the barrier statements. The extent of agreement ranged from 4.902, mild to moderate agreement, to 4.120, mild agreement. Disagreement was expressed toward one of the barrier statements; and, on the remaining two, there was more division among the teachers, although the mean scores for these two items were in the direction of agreement.

Several of the needs statements were directly related to the teacher and/or changes at the classroom level to improve instructional interaction between the teacher and the student. These included reduction of class size, the provision of special curriculum and instructional materials, curriculum development in basic and daily living skills related to vocational opportunities, and changes in attitudes of teachers toward the handicapped. The concerns underlying these needs were also reflected in teachers' perceptions of the barrier statements. For example, teachers agreed with the barrier statement that occupational teachers do not have the time to perform tasks necessary to work with handicapped students. Teachers also expressed agreement with the barrier statement pertaining to insufficient funds to provide equipment or materials to facilitate meeting individual needs of handicapped students. Teachers also recognized, as

TABLE 8

TEACHERS' PERCEPTIONS OF MAINSTREAMING: NEEDS, BARRIERS AND RELATED ITEMS

(1=Disagree Strongly,....,6=Agree Strongly)

1. NEED STATEMENT: *School personnel (principals, counselors) should attend in-service workshops concerned with occupational education, its programs, goals, and objectives.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	2	1	11	68	154	314	18
%	0.4	0.2	1.9	12.0	27.1	55.3	3.2
Adjusted %	0.4	0.2	2.0	12.4	28.0	57.1	

N = 550 $\overline{X} = 5.387$ S. D. = 0.837

2. NEED STATEMENT: *In order to meet the needs of the handicapped student, class size will have to be reduced.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	11	4	15	60	134	331	13
%	1.9	0.7	2.6	10.6	23.6	58.3	2.3
Adjusted %	2.0	0.7	2.7	10.8	24.1	59.6	

N = 555 $\overline{X} = 5.333$ S. D. = 1.042

3. NEED STATEMENT: *Parents of handicapped students need to become more knowledgeable of occupational education programs for their children.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	2	9	96	183	259	18
%	0.2	0.4	1.6	16.9	32.2	46.6	3.2
Adjusted %	0.2	0.4	1.6	17.5	33.3	47.1	

N = 550 $\overline{X} = 5.245$ S. D. = 0.845

4. NEED STATEMENT: *Special instructional materials must be available to teachers with handicapped students in the classroom, e.g., Braille readers, reading materials at simplified levels, etc.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	4	7	9	99	145	286	18
%	0.7	1.2	1.6	17.4	25.5	50.4	3.2
Adjusted %	0.7	1.3	1.6	18.0	26.4	52.0	

N = 550 $\overline{X}$ = 5.240 S. D. = 0.970

5. NEED STATEMENT: *School personnel concerned with placement of handicapped students in occupational classes should attend in-service workshops on occupational education.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	5	5	12	99	171	260	16
%	0.9	0.9	2.1	17.4	30.1	45.8	2.8
Adjusted %	0.9	0.9	2.2	17.9	31.0	47.1	

N = 552 $\overline{X}$ = 5.185 S. D. = 0.965

6. NEED STATEMENT: *Personnel must be made available to help in diagnosing special needs of handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	8	7	14	96	183	246	14
%	1.4	1.2	2.5	16.9	32.2	43.3	2.5
Adjusted %	1.4	1.3	2.5	17.3	33.0	44.4	

N = 554 $\overline{X}$ = 5.125 S. D. = 1.024

7. NEED STATEMENT: *For handicapped students, a curriculum should be developed which relates basic skills and daily living skills to vocational opportunities.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	3	3	8	142	204	190	18
%	0.5	0.5	1.4	25.0	35.9	33.5	3.2
Adjusted %	0.5	0.5	1.5	25.8	37.1	34.5	

N = 550 $\overline{X} = 5.020$ S. D. = 0.894

8. NEED STATEMENT: *Transportation services are essential for handicapped students if they are to participate in cooperative education programs.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	4	9	19	147	159	212	18
%	0.7	1.6	3.3	25.9	28.0	37.3	3.2
Adjusted %	0.7	1.6	3.5	26.7	28.9	35.5	

N = 550 $\overline{X} = 4.971$ S. D. = 1.027

9. NEED STATEMENT: *In-service education is necessary for all school personnel to understand legislation pertaining to the handicapped.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	9	15	45	171	146	169	13
%	1.6	2.6	7.9	30.1	25.7	29.8	2.3
Adjusted %	1.6	2.7	8.1	30.8	26.3	30.5	

N = 555 $\overline{X} = 4.688$ S. D. = 1.160

10. NEED STATEMENT: *Special curriculum materials are necessary before the educational needs of the handicapped can be effectively met.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	11	19	38	169	173	137	21
%	1.9	3.3	6.7	29.8	30.5	24.1	3.7
Adjusted %	2.0	3.5	6.9	30.9	31.6	25.0	

N = 547 $\overline{X}$ = 4.618 S. D. = 1.152

11. NEED STATEMENT: *Allocating State occupational funds without requiring local matching would improve programs for handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	28	36	87	124	137	129	27
%	4.9	6.3	15.3	21.8	24.1	22.7	4.8
Adjusted %	5.2	6.7	16.1	22.9	25.3	23.8	

N = 541 $\overline{X}$ = 4.281 S. D. = 1.423

12. NEED STATEMENT: *In order for the handicapped student to be served in regular occupational programs, attitudes of teachers toward the handicapped must be changed.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	19	36	89	177	118	109	20
%	3.3	6.3	15.7	31.2	20.8	19.2	3.5
Adjusted %	3.5	6.6	16.2	32.3	21.5	19.9	

N = 548 $\overline{X}$ = 4.215 S. D. = 1.306

13. NEED STATEMENT: *Occupational training equipment must be modified to accommodate the handicapped student.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	20	31	89	205	126	80	17
%	3.5	5.5	15.7	36.1	22.2	14.1	3.0
Adjusted %	3.6	5.6	16.2	37.2	22.9	14.5	

N = 551 $\overline{X}$ = 4.136 S. D. = 1.228

14. NEED STATEMENT: *Existing facilities can be modified to serve handicapped students with minimum cost.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	28	51	63	197	131	73	25
%	4.9	9.0	11.1	34.7	23.1	12.9	4.4
Adjusted %	5.2	9.4	11.6	36.3	24.1	13.4	

N = 543 $\overline{X}$ = 4.052 S. D. = 1.317

1. BARRIER STATEMENT: *Not enough support personnel (aides, tutors, etc.) are available to help teachers provide occupational instruction to handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	6	7	39	144	140	213	19
%	1.1	1.2	6.9	25.4	24.6	37.5	3.3
Adjusted %	1.1	1.3	7.1	26.2	25.5	38.8	

N = 549 $\overline{X}$ = 4.902 S. D. = 1.103

2. BARRIER STATEMENT: *School systems do not have sufficient funds to purchase necessary equipment or materials to facilitate the individual needs of the handicapped student.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	16	24	66	120	155	168	19
	2.8	4.2	11.6	21.1	27.3	29.6	3.3
Adjusted %	2.9	4.4	12.0	21.9	28.2	30.6	

N = 549 $\overline{X}$ = 4.599 S.D. = 1.307

3. BARRIER STATEMENT: *Smaller school systems do not have sufficient resources to offer the variety of options necessary to provide a flexible, individual occupational program for the handicapped student.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	25	35	80	122	139	153	14
%	4.4	6.2	14.1	21.5	24.5	26.9	2.5
Adjusted %	4.5	6.3	14.1	22.0	25.1	27.6	

N = 554 $\overline{X}$ = 4.397 S. D. = 1.416

4. BARRIER STATEMENT: *Occupational teachers do not have the time to perform tasks (such as developing individual instructional programs) necessary to work with handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	21	34	82	150	112	151	18
%	3.7	6.0	14.4	26.4	19.7	26.6	3.2
Adjusted %	3.8	6.2	14.9	27.3	20.4	27.5	

N = 550 $\overline{X}$ = 4.365 S. D. = 1.383

5. BARRIER STATEMENT: *Federal and state program guidelines restrict local flexibility in using funds to meet local needs.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	18	15	89	198	108	107	33
%	3.2	2.6	15.7	34.9	19.0	18.8	5.8
Adjusted %	3.4	2.8	16.6	37.0	20.2	20.0	

N = 535 $\overline{X}$ = 4.279 S. D. = 1.228

6. BARRIER STATEMENT: *Occupational teachers are generally not aware of employment opportunities available for handicapped students with occupational skills.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	23	28	79	185	149	86	18
%	4.0	4.9	13.9	32.6	26.2	15.1	3.2
Adjusted %	4.2	5.1	14.4	33.6	27.1	15.6	

N = 550 $\overline{X}$ = 4.213 S. D. = 1.256

7. BARRIER STATEMENT: *Most occupational teachers are inadequately prepared to handle the education of the handicapped student in their classes.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	29	43	94	152	123	111	16
%	5.1	7.6	16.5	26.8	21.7	19.5	2.8
Adjusted %	5.3	7.8	17.0	27.5	22.3	20.1	

N = 552 $\overline{X}$ = 4.141 S. D. = 1.402

8. BARRIER STATEMENT: *School facilities (classrooms, shops, labs) are not easily accessible to the handicapped.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	20	45	104	149	144	88	18
%	3.5	7.9	18.3	26.2	25.4	15.5	3.2
Adjusted %	3.6	8.2	18.9	27.1	26.2	16.0	

N = 550 $\overline{X}$ = 4.120 S. D. = 1.317

9. BARRIER STATEMENT: *Existing program guidelines and reporting requirements tend to encourage special occupational programs for handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	27	33	117	241	86	39	25
%	4.8	5.8	20.6	42.4	15.1	6.9	4.4
Adjusted %	5.0	6.1	21.5	44.4	15.8	7.2	

N = 543 $\overline{X}$ = 3.816 S. D. = 1.149

54

10. BARRIER STATEMENT: *Employers in business and industry are reluctant to hire handicapped students who have completed an occupational skill training program.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	50	63	134	163	82	57	19
%	8.8	11.1	23.6	28.7	14.4	10.0	3.3
Adjusted %	9.1	11.5	24.4	29.7	14.9	10.4	

N = 549 $\overline{X}$ = 3.610 S. D. = 1.392

11. BARRIER STATEMENT: *Handicapped students should not be allowed to use occupationally-related machinery because it presents a hazard to them.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	127	146	147	89	24	20	15
%	22.4	25.7	25.9	15.7	4.2	3.5	2.6
Adjusted %	23.0	26.4	26.6	16.1	4.3	3.6	

N = 553 $\overline{X}$ = 2.633 S. D. = 1.308

1. RELATED STATEMENT: *In-service education for teachers and other school personnel can change attitudes toward the handicapped.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	3	7	28	169	167	178	16
%	0.5	1.2	4.9	29.8	29.4	31.3	2.8
Adjusted %	0.5	1.3	5.1	30.6	30.3	32.2	

N = 552 $\overline{X}$ = 4.855 S. D. = 1.007

2. RELATED STATEMENT: *Labeling of students as handicapped often leads to segregating them in groups.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	7	12	25	152	181	174	17
%	1.2	2.1	4.4	26.8	31.9	30.6	3.0
Adjusted %	1.3	2.2	4.5	27.6	32.8	31.6	

N = 551 $\overline{X}$ = 4.833 S. D. = 1.071

3. RELATED STATEMENT: *Different teaching methods must be employed before the handicapped can be successfully integrated into regular classrooms.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	10	25	74	162	162	118	19
%	1.8	4.4	13.0	28.5	28.5	20.8	3.3
Adjusted %	1.8	4.6	13.5	29.5	29.5	21.5	

N = 549 $\overline{X}$ = 4.444 S. D. = 1.200

56

4. RELATED STATEMENT: *Cooperative education programs have more potential for effectively serving handicapped students than do regular occupational programs.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	41	35	140	170	101	60	21
%	7.2	6.2	24.6	29.9	17.8	10.6	3.7
Adjusted %	7.5	6.4	25.6	31.1	18.5	11.0	

N = 547 $\overline{X}$ = 3.795 S. D. = 1.331

5. RELATED STATEMENT: *Occupational education teachers are qualified to plan individualized programs for handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	55	79	114	163	94	47	16
%	9.7	13.9	20.1	28.7	16.5	8.3	2.8
Adjusted %	10.0	14.3	20.7	29.5	17.0	8.5	

N = 552 $\overline{X}$ = 3.549 S. D. = 1.410

6. RELATED STATEMENT: *Most community employers are willing to accept handicapped students for placement in cooperative education programs.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	34	63	147	225	58	19	22
%	6.0	11.1	25.9	39.6	10.2	3.3	3.9
Adjusted %	6.2	11.5	26.9	41.2	10.6	3.5	

N = 546 $\overline{X}$ = 3.489 S. D. = 1.130

evidenced by substantial agreement with related item #3, that different teaching methods must be employed to insure successful integration of handicapped students in regular vocational programs.

In-service workshops for school personnel such as principals, counselors and those involved with the placement of handicapped students in occupational education classes to make them more knowledgeable and understanding of occupational education appeared to be an important area of need. This was also true for parents. Teachers agreed with the need for them to become more knowledgeable of occupational education programs. In-service education for all school personnel on legislation pertaining to the handicapped was also seen as necessary. Teachers were optimistic about the efficacy of in-service education as a vehicle for changing attitudes of teachers and other school personnel toward the handicapped.

Teachers in the survey expressed agreement with the barrier statement that most occupational teachers are inadequately prepared for mainstreaming. The teachers were almost evenly divided in their perceptions of the statement concerning occupational education teachers being qualified to plan individualized programs for handicapped students. It appears that in-service education programs need to address both planning for, and implementation of, programs for the handicapped, with more emphasis on the latter.

The barrier statement which received the highest expression of agreement was related to the lack of support personnel such as aides and tutors to help the teacher in providing occupational instruction to handicapped students. Teachers also expressed substantial agreement with the need for support in diagnosing the special educational needs of handicapped students. Support services to occupational instruction, provided directly in the classroom or indirectly by outside support personnel, were viewed as critical areas of need by the teachers.

The teachers, as a group, slightly agreed that cooperative education programs have more potential than do regular occupational programs for serving handicapped students. Transportation services for handicapped students participating in cooperative programs were viewed as essential.

Several of the items to which the teachers responded were related to funding, reporting requirements, and program guidelines. Teachers agreed with the barrier statement that smaller school systems do not have sufficient resources to provide a variety of options necessary to provide a flexible, individual occupational program for handicapped students. Teachers agreed with the need for a resource allocation system that does not require local matching, and agreed that such a system would improve programs for handicapped students. Teachers felt that Federal and State Program guidelines restrict local flexibility in using funds to meet local needs. This may relate to the matching funds requirement, and may also pertain to types of programming which can be implemented. There was slight agreement, for example, among the teachers that existing program guidelines and reporting requirements tend to encourage special occupational programs for handicapped students. Related to this, there was moderate agreement among teachers that labeling of students as handicapped often leads to segregating them in groups.

The level of program funding also affects the adequacy of equipment and materials to facilitate meeting the individual needs of the handicapped student. Teachers agreed that school systems do not have sufficient funds to purchase necessary equipment and materials.

There appears to be no excessive concern among the teachers about safety in terms of handicapped students using shop/lab machinery. In fact, a substantial majority of the teachers disagreed with the barrier statement pertaining to handicapped students not being allowed to use occupationally-related machinery because it presents a hazard to them. Teachers generally agreed, however, that occupational training equipment must be modified to accommodate the handicapped student.

There was agreement among the teachers that they are generally not aware of employment opportunities available for handicapped students with occupational skills. Over 40% of the teachers agreed "moderately" or "strongly" with this barrier statement. Teachers were more evenly divided, however, in their responses to the barrier statement pertaining to employer reluctance in hiring handicapped students who have completed an occupational skill training program. A similar type of split response was made by teachers in response to the statement that community employers are willing to accept handicapped students for placement in cooperative programs. About 45% of the teachers disagreed, strongly to mildly, with this statement. It should be noted that a similar, though a slightly lower, percentage of the teachers (39.5%) also disagreed that cooperative education programs have more potential for serving handicapped students than do regular occupational programs.

Almost 75% of the teachers agreed with the statement that attitudes of teachers toward the handicapped must be changed in order for handicapped students tobe served in regular occupational programs. In-service education for teachers as well as other school personnel was viewed as an effective strategy by the teachers for changing attitudes toward the handicapped.

One major problem area for the handicapped frequently discussed in the literature is architectural barriers. In responding to the barrier statement "school facilities (classrooms, shops, labs) are not easily accessible to the handicapped," almost 70% of the teachers agreed with this statement; 27.1% agreed mildly, 26.2% agreed moderately and 16.0% agreed strongly. The magnitude of the problem presented by this barrier is not so great that it cannot be overcome, however. The majority of teachers, over 70%, felt that existing facilities can be modified to serve handicapped students with minimum cost.

Principals' Perceptions of Mainstreaming: Needs, Barriers and Related Items

Principals' perceptions of mainstreaming needs, barriers and related items, as measured by extent of disagreement or agreement, are presented in Table 9. The needs and barrier statements are listed in descending order on the basis of the mean value and numbered sequentially. The higher the mean value score, the greater the agreement among the principals as a group with the need or barrier statement. Related items are also listed in this manner.

The principals, as a group, expressed agreement with all of the 14 statements of need. The extent of agreement ranged from a mean score of 5.192 to 3.788. The four statements of need which received the highest extent of agreement were related to diagnostic personnel, reduction of class size, parental knowledge of occupational education programs, and availability of special instructional materials.

Agreement on the barrier statements was not as extensive, although as a group, the majority of the principals were in agreement to some extent with 10 of the 11 barrier statements. There was marked disagreement by the principals in response to one of the barrier statements. The four barrier statements which received the highest extent of agreement were related to insufficient funds for equipment or materials, lack of support personnel, restrictive Federal and State program guidelines, and limited resources in smaller school systems. The barrier statement receiving substantial disagreement was related to hazards involved in allowing handicapped students to use occupationally-related machinery.

The principals expressed moderate to strong agreement with the need for personnel to help in diagnosing the special needs of handicapped students, with almost 50% strongly agreed with this statement. The need for diagnostic personnel may be related to the development of individualized programs for handicapped students. Principals were divided in their opinions in response to the statement that occupational education teachers are qualified to plan individualized programs for handicapped

TABLE 9

PRINCIPALS' PERCEPTIONS OF MAINSTREAMING: NEEDS, BARRIERS AND RELATED ITEMS

(1=Disagree Strongly,....,6=Agree Strongly)

1. NEED STATEMENT: *Personnel must be made available to help in diagnosing special needs of handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	0	1	4	16	32	46	2
%	0.0	1.0	4.0	15.8	31.7	45.5	2.0
Adjusted %	0.0	1.0	4.0	16.2	32.3	46.5	

N = 99 $\overline{X}$ = 5.192 S. D. = 0.922

2. NEED STATEMENT: *In order to meet the needs of the handicapped student, class size will have to be reduced.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	1	6	19	28	48	1
%	1.0	1.0	65.9	18.8	24.8	47.5	1.0
Adjusted %	1.0	1.0	6.0	19.0	25.0	48.0	

N = 100 $\overline{X}$ = 5.100 S. D. = 1.078

3. NEED STATEMENT: *Parents of handicapped students need to become more knowledgeable of occupational education programs for their children.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	0	0	2	26	32	38	3
%	0.0	0.0	2.0	25.7	31.7	37.6	3.0
Adjusted %	0.0	0.0	2.0	26.5	32.7	38.8	

N = 98 $\overline{X}$ = 5.082 S. D. = 0.858

4. **NEED STATEMENT:** *Special instructional materials must be available to teachers with handicapped students in the classroom, e.g., Braille readers, reading materials at simplified levels, etc.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	1	3	20	37	37	2
%	1.0	1.0	3.0	19.8	36.6	36.6	2.0
Adjusted %	1.0	1.0	3.0	20.2	37.4	37.4	

N = 99 $\overline{X}$ = 5.040 S. D. = 0.979

5. **NEED STATEMENT:** *Transportation services are essential for handicapped students if they are to participate in cooperative education programs.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	0	1	7	27	30	34	2
%	0.0	1.0	6.9	26.7	29.7	33.7	2.0
Adjusted %	0.0	1.0	7.1	27.3	30.3	34.3	

N = 99 $\overline{X}$ = 4.899 S. D. = 0.995

6. **NEED STATEMENT:** *School personnel concerned with placement of handicapped students in occupational classes should attend in-service workshops on occupational education.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	1	5	28	33	32	1
%	1.0	1.0	5.0	27.7	32.7	31.7	1.0
Adjusted %	1.0	1.0	5.0	28.0	33.0	32.0	

N = 100 $\overline{X}$ = 4.870 S. D. = 1.022

7. **NEED STATEMENT:** *For handicapped students, a curriculum should be developed which relates basic skills and daily living skills to vocational opportunities.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	0	1	3	34	34	26	3
%	0.0	1.0	3.0	33.7	33.7	25.7	3.0
Adjusted %	0.0	1.0	3.1	34.7	34.7	26.5	

N = 98 $\overline{X}$ = 4.827   S. D. = 0.897

8. **NEED STATEMENT:** *School personnel (principals, counselors) should attend in-service workshops concerned with occupational education, its programs, goals, and objectives.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	0	8	27	37	25	3
%	1.0	0.0	7.9	26.7	36.6	24.8	3.0
Adjusted %	1.0	0.0	8.2	27.6	37.8	25.5	

N = 98 $\overline{X}$ = 4.776   S. D. = 0.990

9. **NEED STATEMENT:** *Special curriculum materials are necessary before the educational needs of the handicapped can be effectively met.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	0	1	7	37	35	19	2
%	0.0	1.0	6.9	36.6	34.7	18.8	2.0
Adjusted %	0.0	1.0	7.1	37.4	35.4	19.2	

N = 99 $\overline{X}$ = 4.646   S. D. = 0.907

10. **NEED STATEMENT:** *In-service education is necessary for all school personnel to understand legislation pertaining to the handicapped.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	2	3	9	33	23	29	2
%	2.0	3.0	8.9	32.7	22.8	28.7	2.0
Adjusted %	2.0	3.0	9.1	33.3	23.2	29.3	

N = 99 $\overline{X}$ = 4.606 S. D. = 1.202

11. **NEED STATEMENT:** *Allocating State occupational funds without requiring local matching would improve programs for handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	5	5	14	24	20	29	4
%	5.0	5.0	13.9	23.8	19.8	28.7	4.0
Adjusted %	5.2	5.2	14.4	24.7	20.6	29.9	

N = 97 $\overline{X}$ = 4.402 S. D. = 1.441

12. **NEED STATEMENT:** *In order for the handicapped student to be served in regular occupational programs, attitudes of teachers toward the handicapped must be changed.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	0	0	22	39	19	19	2
%	0.0	0.0	21.8	38.6	18.8	18.8	2.0
Adjusted %	0.0	0.0	22.2	39.4	19.2	19.2	

N = 99 $\overline{X}$ = 4.354 S. D. = 1.033

13. **NEED STATEMENT:** *Occupational training equipment must be modified to accommodate the handicapped student.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	2	4	15	39	23	16	2
%	2.0	4.0	14.9	38.6	22.8	15.8	2.0
Adjusted %	2.0	4.0	15.2	39.4	23.2	16.2	

N = 99 $\bar{X}$ = 4.263 **S. D.** = 1.148

14. **NEED STATEMENT:** *Existing facilities can be modified to serve handicapped students with minimum cost.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	4	19	11	31	28	6	2
%	4.0	18.8	10.9	30.7	27.7	5.9	2.0
Adjusted %	4.0	19.2	11.1	32.3	28.3	6.1	

N = 99 $\bar{X}$ = 3.788 **S. D.** = 1.319

1. **BARRIER STATEMENT:** *School systems do not have sufficient funds to purchase necessary equipment or materials to facilitate the individual needs of the handicapped student.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	1	12	23	21	41	2
%	1.0	1.0	11.9	22.8	20.8	40.6	2.0
Adjusted %	1.0	1.0	12.1	23.2	21.2	41.4	

N = 99 $\overline{X}$ = 4.869 S. D. = 1.175

2. **BARRIER STATEMENT:** *Not enough support personnel (aides, tutors, etc.) are available to help teachers provide occupational instruction to handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	0	3	5	32	30	30	1
%	0.0	3.0	5.0	31.7	29.7	29.7	1.0
Adjusted %	0.0	3.0	5.0	32.0	30.0	30.0	

N = 100 $\overline{X}$ = 4.790 **S. D.** = 1.028

3. **BARRIER STATEMENT:** *Federal and state program guidelines restrict local flexibility in using funds to meet local needs.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	1	11	31	25	27	5
%	1.0	1.0	10.9	30.7	24.8	26.7	5.0
Adjusted %	1.0	1.0	11.5	32.3	26.0	28.1	

N = 96 $\overline{X}$ = 4.656 **S. D.** = 1.103

4. **BARRIER STATEMENT:** *Smaller school systems do not have sufficient resources to offer the variety of options necessary to provide a flexible, individual occupational program for the handicapped student.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	3	7	11	21	29	27	3
%	3.0	6.9	10.9	20.8	28.7	26.7	3.0
Adjusted %	3.1	7.1	11.2	21.4	29.6	27.6	

N = 98 **$\bar{X}$ =** 4.500 **S. D. =** 1.357

5. **BARRIER STATEMENT:** *Occupational teachers are generally not aware of employment opportunities available for handicapped students with occupational skills.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	0	5	19	42	24	10	1
%	0.0	5.0	18.8	41.6	23.8	9.9	1.0
Adjusted %	0.0	5.0	19.0	42.0	24.0	10.0	

N = 100 **$\bar{X}$ =** 4.150 **S. D. =** 1.009

6. **BARRIER STATEMENT:** *Most occupational teachers are inadequately prepared to handle the education of the handicapped student in their classes.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	3	5	22	34	20	16	1
%	3.0	5.0	21.8	33.7	19.8	15.8	1.0
Adjusted %	3.0	5.0	22.0	34.0	20.0	16.0	

N = 100 **$\bar{X}$ =** 4.110 **S. D. =** 1.238

7. **BARRIER STATEMENT:** *School facilities (classrooms, shops, labs) are not easily accessible to the handicapped.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	12	18	28	25	14	3
%	1.0	11.9	17.8	27.7	24.8	13.9	3.0
Adjusted %	1.0	12.2	18.4	28.6	25.5	14.3	

N = 98 $\overline{X}$ **=** 4.082 **S. D. =** 1.266

8. **BARRIER STATEMENT:** *Employers in business and industry are reluctant to hire handicapped students who have completed an occupational skill training program.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	11	27	34	21	4	3
%	1.0	10.9	26.7	33.7	20.8	4.0	3.0
Adjusted %	1.0	11.2	27.6	34.7	21.4	4.1	

N = 98 $\overline{X}$ **=** 3.765 **S. D. =** 1.073

9. **BARRIER STATEMENT:** *Existing program guidelines and reporting requirements tend to encourage special occupational programs for handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	2	7	28	41	14	4	5
%	2.0	6.9	27.7	40.6	13.9	4.0	5.0
Adjusted %	2.1	7.3	29.2	42.7	14.6	4.2	

N = 96 $\overline{X}$ **=** 3.729 **S. D. =** 1.010

10. **BARRIER STATEMENT:** *Occupational teachers do not have the time to perform tasks (such as developing individual instructional programs) necessary to work with handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	8	16	17	36	14	8	2
%	7.9	15.8	16.8	35.6	13.9	7.9	2.0
Adjusted %	8.1	16.2	17.2	36.4	14.1	8.1	

N = 99 $\overline{X}$ = 3.566 **S. D.** = 1.356

11. **BARRIER STATEMENT:** *Handicapped students should not be allowed to use occupationally-related machinery because it presents a hazard to them.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	21	34	26	1	2	0	1
%	20.8	33.7	35.6	6.9	2.0	0.0	1.0
Adjusted %	21.0	34.0	36.0	7.0	2.0	0.0	

N = 100 $\overline{X}$ = 2.350 **S. D.** = 0.957

1. **RELATED STATEMENT:** *In-service education for teachers and other school personnel can change attitudes toward the handicapped.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	2	5	33	34	25	1
%	1.0	2.0	5.0	32.7	33.7	24.8	1.0
Adjusted %	1.0	2.0	5.0	33.0	34.0	25.0	

N = 100 **$\overline{X}$ =** 4.720 **S. D. =** 1.026

2. **RELATED STATEMENT:** *Labeling of students as handicapped often leads to segregating them in groups.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	2	10	28	28	30	2
%	1.0	2.0	9.9	27.7	27.7	29.7	2.0
Adjusted %	1.0	2.0	10.1	28.3	28.3	30.3	

N = 99 **$\overline{X}$ =** 4.717 **S. D. =** 1.125

3. **RELATED STATEMENT:** *Different teaching methods must be employed before the handicapped can be successfully integrated into regular classrooms.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	3	14	39	22	19	3
%	1.0	3.0	13.9	38.6	21.8	18.8	3.0
Adjusted %	1.0	3.1	14.3	39.8	22.4	19.4	

N = 98 **$\overline{X}$ =** 4.378 **S. D. =** 1.108

4. **RELATED STATEMENT:** *Cooperative education programs have more potential for effectively serving handicapped students than do regular occupational programs.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	4	6	16	44	22	6	3
%	4.0	5.9	15.8	43.6	21.8	5.9	3.0
Adjusted %	4.1	6.1	16.3	44.9	22.4	6.1	

N = 98 $\overline{X}$ = 3.939 **S. D.** = 1.120

5. **RELATED STATEMENT:** *Most community employers are willing to accept handicapped students for placement in cooperative education programs.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	1	8	32	41	14	3	2
%	1.0	7.9	31.7	40.6	13.9	3.0	2.0
Adjusted %	1.0	8.1	32.3	41.4	14.1	3.0	

N = 99 $\overline{X}$ = 3.687 **S. D.** = 0.955

6. **RELATED STATEMENT:** *Occupational education teachers are qualified to plan individualized programs for handicapped students.*

	Disagree Strongly	Disagree Moderately	Disagree Mildly	Agree Mildly	Agree Moderately	Agree Strongly	No Data
N	9	12	20	43	15	1	1
%	8.9	11.9	19.8	42.6	14.9	1.0	1.0
Adjusted %	9.0	12.0	20.0	43.0	15.0	1.0	

N = 100 $\overline{X}$ = 3.460 **S. D.** = 1.184

students. Forty-one percent disagreed, and 59% agreed; the mean value was 3.460.

Several items were related to teacher and student interaction at the classroom level. Principals expressed mild to moderate agreement with the barrier statement related to inadequate preparation of the teachers to handle the education of handicapped students in their classes. Lack of teachers' time to perform tasks necessary to work with handicapped students did not receive substantial agreement from the principals as a barrier. The mean value for this item was 3.566. The principals agreed that lack of support personnel is a barrier to providing occupational instruction to handicapped students. Support personnel includes aides, tutors and others who can impact on the delivery and quality of instruction. Principals agreed that class size will have to be reduced if the needs of the handicapped student are to be met. This need statement received substantial agreement among the principals.

Curriculum development, special instructional materials and different teaching methods will be needed in serving the handicapped student. There was agreement among principals that special instructional materials must be available to teachers having handicapped students in the classroom. Special curriculum materials to effectively meet the educational needs of the handicapped were seen as necessary. Principals agreed that a curriculum should be developed for handicapped students which relates basic and daily living skills to vocational opportunities. Principals also agreed that occupational teachers must employ different teaching methods to successfully integrate the handicapped into regular classrooms.

The principals agreed that in-service education needs to be provided to school personnel, including principals, counselors and others concerned with the placement of handicapped students in occupational classes. The focus of in-service training should be on occupational education, its programs, goals, and objectives. The agreement expressed in response to these need statements appears to reflect a general need for better communication and understanding within the school and between school personnel about vocational education. This need was also felt in the area of parental involvement. There was moderate to strong agreement among the principals that parents of handicapped students need to become more knowledgeable of occupational education programs. Mild to moderate agreement was also expressed by the principals for in-service education for all school personnel to understand legislation pertaining to the handicapped.

With respect to the type of program to be provided, principals indicated mild agreement with the statement that cooperative education programs have more potential for effectively serving handicapped students than do regular occupational programs. There was more agreement among the principals, however, that if handicapped students are to participate in cooperative education programs, transportation services are essential.

Principals saw a need for teacher attitudes toward the handicapped to be changed, if handicapped students are to be served in regular occupational programs. Mild to moderate agreement was expressed by the principals in response to this need statement. Principals agreed that in-service education for teachers and other school personnel can be effective in changing attitudes.

Several statements were related to level of program funding, resource allocation procedures, and program guidelines and reporting requirements. The principals expressed mild to moderate agreement that insufficient resources is a barrier for smaller school systems in providing occupational programs for the handicapped. Principals were generally agreed (30% agreed strongly) that allocating state occupational funds without requiring local matching would improve programs. Principals indicated agreement that Federal and State program guidelines restrict local flexibility in using funds to meet local needs. However, there was less agreement expressed among the principals concerning program guidelines and reporting requirements encouraging special occupational programs for handicapped students. Forty-one agreed mildly with this statement, while 28 disagreed mildly with it. Principals agreed that the labeling of students as handicapped often leads to segregating them in groups.

An area of funding which was seen as insufficient by the principals was funds to purchase equipment and materials. This statement received the highest mean value score for all of the barrier statements. Mild to moderate agreement was also expressed for the need to modify occupational training equipment to accommodate handicapped students. Principals disagreed with the barrier statement that using occupationally-related equipment presents a hazard to handicapped students.

With respect to the accessiblity of school facilities, the principals expressed mild agreement with this barrier statement. Generally, the principals agreed that existing facilities can be modified to serve handicapped students with minimum cost.

Two of the barrier statements were related to employment opportunities for handicapped students. Principals indicated mild agreement with the barrier statement pertaining to occupational teachers' lack of awareness of employment opportunities for handicapped students with occupational skills. Slight agreement was expressed with employer reluctance to hire handicapped students as a barrier. Related to the actual hiring of handicapped students is the acceptance of handicapped students for placement in cooperative education programs. The principals as a group agreed mildly that community employers are willing to accept handicapped students in such training situations.

Differences Between Teachers' and Principals' Perceptions of Mainstreaming: Attitudes, Needs, Barriers, and Related Items

Visual inspection of the mean scores of teachers and principals on attitudes toward mainstreaming, and perceptions of mainstreaming needs, barriers and related items indicated that, for the majority of these items, teachers and principals held similar attitudes and opinions. This observation was tested statistically by applying a t'-test for the significance of the difference between the means of two independent samples, and not assuming the two population variances were the same. Procedures suggested by Snedecor and Cochran (1972, pp. 114-116) were followed. These tests were applied to the attitude toward mainstreaming scores, and to each of the 14 need statements, 11 barrier statements and six related items. In all, this involved 32 tests. On only four of the items were teachers' and principals' opinions, as measured by the mean scores, significantly different. Results are shown in Table 10 below, showing only those four items where significant differences between the mean scores were found.

TABLE 10

SIGNIFICANT DIFFERENCES BETWEEN MEAN SCORES OF PRINCIPALS' AND TEACHERS' PERCEPTIONS OF MAINSTREAMING NEEDS AND BARRIERS

Need/Barrier Statement	$\bar{X}_T$	$\bar{X}_P$	t'
School personnel concerned with placement of handicapped students in occupational classes should attend in-service workshops on occupational education.	5.185	4.870	-2.87^*
Federal and State program guidelines restrict local flexibility in using funds to meet local needs.	4.279	4.656	3.03^*
School personnel (principals, counselors) should attend in-service workshops concerned with occupational education, its programs, goals, and objectives.	5.387	4.776	-5.78^*
Occupational teachers do not have the time to perform tasks (such as developing individual instructional programs) necessary to work with handicapped students.	4.365	3.566	-5.38^*

* $p < 0.5$ (X_T=Teachers, X_p= Principals)

Teachers were more strongly agreed that "school personnel concerned with placement of handicapped students in occupational classes should attend in-service workshops on occupational education" than were principals. In their responses to this need statement, 47.1% of the teachers expressed strong agreement compared to 32.0% of the principals. Only 4% of the teachers expressed some degree of disagreement compared to 7% of the principals.

Teachers were also more strongly agreed that "school personnel (principals, counselors) should attend in-service workshops concerned with occupational education, its programs, goals, and objectives" than were principals. In their responses to this need statement, 57.1% of the teachers expressed strong agreement compared to 25.5% of the principals. Less than 3% of the teachers expressed any degree of disagreement compared to 9.2% of the principals.

It is apparent that teachers see more need for communication within the school aimed at increasing school personnel's knowledge and understanding of occupational education.

Principals were more strongly agreed that "Federal and State program guidelines restrict local flexibility in using funds to meet local needs" than were teachers. In their responses to this barrier statement, 30% of the principals expressed strong agreement compared to 20% of the teachers; 30% of the principals expressed moderate agreement compared to 20.2% of the teachers. Of the principal group, 13.5% expressed some degree of disagreement with this as a barrier compared to 22.8% of the teachers. While both groups generally agreed that program guidelines are restrictive and constitute a barrier to meeting local needs, their impact is probably more significant on principals because of their administrative role.

Teachers were more strongly agreed that they do not "have the time to perform tasks (such as developing individual instructional programs) necessary to work with handicapped students," than were principals. In their responses to this barrier statement, 27.5% of the teachers expressed strong agreement compared to 8.1% of the principals; 20.4% of the teachers expressed moderate agreement compared to 14.1% of the principals. A higher percentage of the principals (41.5%) expressed some degree of disagreement with lack of teacher time as a barrier than did teachers (24.9%). Lack of teacher time is a barrier which obviously impacts more directly on the teacher than on the principal. However, as mainstreaming is implemented, the principal will need to be sensitive to the teachers' concerns in this area. The wider the gap between the teachers' perception and the principals' perception of teacher time as a variable, the greater the potential will be for misunderstanding as programs are implemented.

Planning for the implementation of mainstreaming handicapped students in vocational education should be facilitated by the finding in this study that on the majority of the variables considered (either attitude toward mainstreaming, or perceptions of needs, barriers and related items) principals and teachers were in general agreement. Common understanding of the needs and barriers which must be addressed by the key personnel who will occupy significant roles in the implementation of mainstreaming provides a good base from which to plan and begin the process. Appropriate attention, however, must be given to those areas where differences in perceptions do exist.

Differences in Teachers' Perceptions of Needs, Barriers and Related Items Related to Occupational Program Area, Enrollment Size of School, and Location of School

The information obtained on teachers' perceptions of mainstreaming needs, barriers and related items presented earlier in Table 8, was examined further to determine if teachers' perceptions differed according to the occupational program area of the teacher, the enrollment size of the school, i.e., less than 1,000 or 1,000 or more, and the location of the school, i.e., urban or rural. To test for differences in teachers' perceptions, multiple analysis of variance procedures using SPSS subprogram ANOVA were employed. Specifically, three two-way analyses of variance procedures were conducted: location of school by occupational program area, enrollment size of school by occupational program area, and location of school by enrollment size of school. Two-way analysis of variance procedures were employed to insure adequate representation for each cell in the factorial design. Significance at the .05 level was required to reject the null hypothesis. Where significant main effects were observed, a one-way analysis of variance procedure was applied using SPSS subprogram ONEWAY and applying Scheffé's test for significant differences between means. The .10 level of significance was used with the Scheffé procedures. Ferguson (1971, pp. 274-275) suggested that this combination provides an acceptable compromise between Type I and Type II errors. Where significant interaction effects were observed, the nature of the interaction was examined using Multiple Classification Analysis, an SPSS subprogram option for determining the pattern of the effects of a given variable as other variables are controlled. For this particular part of the data analysis, ninety-three two-way analysis of variance tables were computed. Two limitations on the analysis of variance procedures need to be pointed out. First, some bias has been introduced in the F test as a result of unequal numbers in the subclasses, the extent of bias related to the magnitude of the departures. No allowance was made for the fact that the numbers of cases in the subclasses were unequal. The implication is that the F test may have produced either a larger or smaller proportion of significant F ratios than is warranted by the F distribution. Secondly, because of the large number of analysis of variance procedures applied, it was expected that some of these results would be significant due to sample fluctuation. Interpretation of the results and findings herein presented, therefore, should be considered with some degree of tentativeness.

Significant main effects and/or interaction effects were observed in twenty-five of the analysis of variance tables. For purposes of brevity in presenting the results, only those tables in which significance due to main or interaction effects were observed are reported on in this report.*

Location of School by Occupational Program Area

The analysis of teachers' perceptions of mainstreaming needs, barriers, and related items by location of school and occupational program area involved thirty-one two-way analysis of variance procedures or an analysis of variance procedure for each of the three types of statements. The level of significance of F for needs statements 1, 3, 5, 6, 8, 9, 11, 12, and 13 in Table 8, for barrier statements 1, 3, 4, 6, 8, 9, 10, 11 in Table 8, and for related items 1, 3, and 6 in Table 8 exceeded the required level of significance ($p < .05$). For these needs, barriers and related items, the school location and the occupational program area of the teacher made no significant differences in the teachers' perceptions. For the needs, barriers and related items where significant effects were found as a result of the analysis of variance procedures, the results are presented in the following tables.

For the needs statement, "in order to meet the needs of the handicapped student, class size will have to be reduced," the occupational program area of the teacher had significant effect on the teacher's response to this needs statement. (See Table 11). The mean score for business and office education teachers ($\bar{x} = 5.00$) was significantly different from that of the occupational home economics teachers ($\bar{x} = 5.72$), indicating that business and office education teachers agreed less with this needs statement than did the occupational home economics teachers. No other

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[*] The results of the analysis of variance procedures which were not significant are available from the author upon request.

Table 11

Analysis of Teachers' Perceptions of the Need Statement:
In order to meet the needs of the handicapped student, class size will have to be reduced
by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	19.686	7	2.812	2.621	0.011
Location of School	0.014	1	0.014	0.013	0.911
Occupational Program Area	19.665	6	3.277	3.055	0.006*
2-Way Interactions	1.987	6	0.331	0.309	0.932
Location x Program Area	1.987	6	0.331	0.309	0.932
Explained	21.674	13	1.667	1.554	0.095
Residual	547.140	510	1.073		
Total	568.813	523	1.088		

* p. < .05

Table 12

Analysis of Teachers' Perceptions of the Need Statement:
Special instructional materials must be available to teachers with handicapped students in the classroom, e.g., Braille readers, reading materials at simplified levels, etc.
by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	16.275	7	2.325	2.657	0.010
Location of School	0.482	1	0.482	0.551	0.458
Occupational Program Area	15.121	6	2.520	2.881	0.009*
2-Way Interactions	3.196	6	0.533	0.609	0.723
Location x Program Area	3.196	6	0.533	0.609	0.723
Explained	19.471	13	1.498	1.712	0.055
Residual	460.204	526	0.875		
Total	479.675	539	0.890		

* p. < .05

significant differences between the occupational program groups were found.

The results of the analysis of teachers' perceptions of the needs statement, "special instructional materials must be available to teachers with handicapped students in the classroom, for example, braille readers, reading materials at simplified levels, etc." by location of school and occupational program area are presented in Table 12. The results indicated that the occupational program area of the teacher had a significant effect on the teacher's perception of this particular needs statement. A comparison of the occupational program area groups' mean scores on this particular needs statement, however, revealed no significant differences between any of the program groups. For each of the occupational program areas, mean scores were as follows: agriculture, 5.04; industrial arts, 5.12; trade and industrial, 5.13; business and office, 5.35; distributive education 5.42; occupational home economics, 5.52; and health occupations, 5.57. Scheffé's test revealed no significant difference at the .10 level between individual comparisons of group means. It is likely that the significance in the F test was due to contracts between one or more combinations of group means. Other contrasts were not examined, however, because they were not directly related to the objectives of the project. All of the occupational program groups expressed moderate to strong agreement with the need for special instructional materials. Agriculture, industrial arts and trade and industrial education teachers were in agreement with this needs statement to a lesser degree than the teachers as a whole.

An area which has received increasing emphasis in serving handicapped students is curriculum development. Analysis of teachers' perceptions of the needs statement, "for handicapped students a curriculum should be developed which relates basic skills and daily living skills to vocational opportunities," by location of school and occupational program area is presented in Table 13. Results of the analysis indicated that occupational program area had significant effect on teachers' perceptions of this particular needs statement. The mean scores for

Table 13

Analysis of Teachers' Perceptions of the Need Statement:

For handicapped students, a curriculum should be developed which relates basic skills and daily living skills to vocational opportunities

by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	11.933	7	1.705	2.274	0.027
Location of School	0.014	1	0.014	0.018	0.894
Occupational Program Area	11.918	6	1.986	2.649	0.015*
2-Way Interactions	1.967	6	0.328	0.437	0.854
Location x Program Area	1.967	6	0.328	0.437	0.854
Explained	13.900	13	1.069	1.426	0.143
Residual	394.405	526	0.750		
Total	408.305	539	0.758		

* $p < .05$

Table 14

Analysis of Teachers' Perceptions of the Need Statement:

Special curricular materials are necessary before the educational needs of the handicapped can be efficiently met

by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	14.078	7	2.011	1.544	0.150
Location of School	0.097	1	0.097	0.075	0.785
Occupational Program Area	14.078	6	2.346	1.801	0.097
2-Way Interactions	17.653	6	2.942	2.258	0.037
Location x Program Area	17.653	6	2.942	2.258	0.037*
Explained	31.732	13	2.441	1.874	0.031
Residual	677.427	520	1.303		
Total	709.159	533	1.331		

* $p < .05$

each of the occupational program groups on this needs statement were: industrial arts, 4.74; agriculture, 4.76; trade and industrial education, 5.01; business and office education, 5.06; distributive education, 5.13; health occupations, 5.23; and occupational home economics, 5.31. Application of the Scheffé test resulted in no significant differences between individual comparisons of group means. It is likely that the significance in the F test was due to other contrasts, not directly related to the objectives of the project. In comparing each of the occupational program group means with the grand mean for the teacher group (5.02), industrial arts, agricultural and trade and industrial education teachers were less in agreement, while business and office education, distributive education, health occupations and occupational home economics teachers were more in agreement with this need.

In another need statement related to curriculum, the analysis of teachers' perceptions of the need for special curricular materials by location of school and occupational program area is shown in Table 14. The results of this analysis indicated a significant interaction effect between location of school and occupational program area. The results of the multiple classification analysis indicated that the perceptions of agriculture teachers in rural areas differed significantly from the perceptions of occupational home economics, distributive education and health occupations teachers in urban settings on the extent of agreement of the need for special curricular materials. Agricultural education teachers in rural areas agreed substantially less with the need for special curricular materials as compared with the other three groups in urban settings.

One of the need statements related to the need to modify existing facilities. The analysis of the teachers'perceptions of the needs statement, "existing facilities can be modified to serve handicapped students with minimum cost," by location of school and occupational program area is presented in Table 15. The results revealed significant effects for occupational program area and also for the interaction between location of school and occupational program area on teachers' perceptions of this need statement. Group means for the occupational program areas were: business and office, 3.67; distributive education, 3.67; industrial arts, 3.80; health occupations, 3.91; occupational home economics, 4.20; agriculture, 4.20; and trade and industrial, 4.26. The results of the Scheffé test of multiple comparisons revealed no significant differences at the .10 level between the group means. It is likely that the significance of the F test was due to contrasts between one or more combinations of group means. Such contrasts were not investigated. The effect of the interaction between location of school and occupational program area was examined further by multiple classification analysis which indicated that business and office, distributive education and industrial arts teachers located in urban areas significantly differed in their perceptions of this statement compared to trade and industrial education teachers in rural settings. Teachers in the three program areas located in urban settings expressed significantly less agreement compared to trade and industrial education teachers in rural settings on this need statement.

Insufficient funds for purchasing equipment and materials received moderate agreement as a barrier among the teachers. The analysis of the teachers' perceptions of the barrier, "school systems do not have sufficient funds to purchase necessary equipment or materials to facilitate the individual needs of the handicapped student," by location of school and occupational program area is shown in Table 16. The results indicated that the location of the school had a significant effect on the teachers' perceptions of this barrier statement ($\underline{p} < .05$). Comparison of the teacher groups by school location indicated that teachers in rural areas expressed stronger agreement with this barrier ($\overline{X} = 4.80$) than did teachers located in urban areas ($\overline{X} = 4.40$). Lack of funds for purchasing equipment and materials was perceived more strongly by vocational education teachers in rural areas.

Table 15

Analysis of Teachers' Perceptions of the Need Statement:
Existing facilities can be modified to serve handicapped students with minimum cost

by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	31.678	7	4.525	2.717	0.009
Location of School	1.069	1	1.069	0.642	0.423
Occupational Program Area	28.976	6	4.829	2.899	0.009*
2-Way Interactions	26.847	6	4.475	2.686	0.014
Location x Program Area	26.847	6	4.475	2.686	0.014*
Explained	58.525	13	4.502	2.703	0.001
Residual	376.175	526	1.666		
Total	934.700	539	1.734		

* $p < .05$

Table 16

Analysis of Teachers' Perceptions of the Barrier Statement:
School systems do not have sufficient funds to purchase necessary equipment or materials to facilitate the individual needs of the handicapped student

by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	31.416	7	4.488	2.681	0.010
Location of School	26.675	1	26.675	15.935	0.000*
Occupational Program Area	6.164	6	1.027	0.614	0.719
2-Way Interactions	8.629	6	1.438	0.859	0.525
Location x Program Area	8.629	6	1.438	0.859	0.525
Explained	40.046	13	3.080	1.840	0.035
Residual	865.465	517	1.674		
Total	905.511	530	1.709		

* $p < .05$

Possible impact of federal and state program guidelines on local flexibility in using funds was examined. The analysis of teachers' perceptions of the barrier statement, "federal and state program guidelines restrict local flexibility in using funds to meet local needs," by location of school and occupational program area is presented in Table 17. The results indicated that teachers' perceptions of this barrier statement differed significantly depending upon the location of the school. Teachers in rural areas expressed stronger agreement with this statement as a barrier ($\overline{X} = 4.14$). The differences in perception of this barrier between urban and rural teachers was significant ($\underline{p} < .05$).

The analysis of the barrier statement, "most occupational teachers are inadequately prepared to handle the education of the handicapped student in their classes," by location of school and occupational program area is presented in Table 18. The results indicated that the occupational program area had a significant effect on teachers' perceptions of this particular barrier. The multiple comparisons test using the Scheffé procedure revealed no significant differences between the means of the occupational program area groups for pairwise comparisons. It is likely that the significance in the F test was due to contrasts between one or more combinations of group means. These contrasts were not investigated. The mean scores for each of the groups were: agricultural education, 3.67; health occupations, 3.88; industrial arts, 4.13; business and office, 4.19; occupational home economics, 4.21; trade and industrial, 4.27; and distributive education, 4.42. Agricultural, health occupations and industrial arts teachers expressed less agreement with this barrier compared to the teacher group as a whole, while business and office, occupational home economics, trade and industrial and distributive education teachers expressed stronger agreement with this barrier than did the total teacher group.

One problem in serving handicapped students in the educational system has been the potentially detrimental effects of labeling. The teacher group

Table 17

Analysis of Teachers' Perceptions of the Barrier Statement: *Federal and State program guidelines restrict local flexibility in using funds to meet local needs* by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	14.964	7	2.138	1.415	0.197
Location of School	9.867	1	9.867	6.532	0.011*
Occupational Program Area	5.783	6	0.964	0.638	0.700
2-Way Interactions	5.410	6	0.902	0.597	0.733
Location x Program Area	5.410	6	0.902	0.597	0.733
Explained	20.374	13	1.567	1.037	0.413
Residual	780.986	517	1.511		
Total	801.361	530	1.512		

* $p < .05$

Table 18

Analysis of Teachers' Perceptions of the Barrier Statement: *Most occupational teachers are inadequately prepared to handle the education of the handicapped student in their classes* by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	26.833	7	3.833	1.989	0.055
Location of School	0.449	1	0.449	0.233	0.630
Occupational Program Area	26.815	6	4.469	2.319	0.032*
2-Way Interactions	5.212	6	0.869	0.451	0.845
Location x Program Area	5.212	6	0.869	0.451	0.845
Explained	32.045	13	2.465	1.279	0.221
Residual	1010.010	524	1.927		
Total	1042.055	537	1.941		

* $p < .05$

as a whole expressed moderate agreement that the "labeling of students as handicapped often leads to segregating them into groups." The analysis of teachers' perceptions to this statement by location of school and occupational program area is presented in Table 19. The results indicated significant interaction effect between location of school and occupational program area with respect to teachers' perceptions of this related statement. Multiple Classification Analysis indicated that business and office education teachers in rural settings differed significantly from trade and industrial education and health occupations education teachers in urban settings. Business and office education teachers in rural settings expressed significantly less agreement with the statement on labeling than did trade and industrial and health occupations teachers located in urban areas.

Proponents of cooperative education programs have suggested that these types of programs are potentially more effective for serving handicapped students than regular occupational programs. A statement to this effect was included in the questionnaire on mainstreaming and treated as a related item. The results of the analysis of teachers' perceptions of the statement, "cooperative education programs have more potential for effectively serving handicapped students than do regular occupational programs," by location of school and occupational area are presented in Table 20. The results indicated that teachers' perceptions of this statement on cooperative education programs was significantly affected by location of school ($p < .05$). The mean for urban teachers was 3.66 and the mean for teachers in rural areas was 3.93. Teachers in rural areas expressed more agreement with this statement pertaining to cooperative education programs than did teachers in urban settings. The extent of agreement expressed by both groups, however, was mild.

One of the requirements of recent federal and state legislation is the development of individualized education plans (IEPs) for handicapped students. The results of the analysis of teachers' perceptions of the statement,

Table 19

Analysis of Teachers' Perceptions of the Related Statement:
Labeling of students as handicapped often leads to segregating them in groups
by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	4.094	7	0.585	0.520	0.819
Location of School	0.408	1	0.408	0.363	0.547
Occupational Program Area	3.752	6	0.625	0.557	0.765
2-Way Interactions	17.542	6	2.924	2.602	0.017
Location x Program Area	17.542	6	2.924	2.602	0.017*
Explained	21.635	13	1.664	1.481	0.120
Residual	589.932	525	1.124		
Total	611.568	538	1.137		

* $p < .05$

Table 20

Analysis of Teachers' Perceptions of the Related Statement:
Cooperative education programs have more potential for effectively serving handicapped students than do regular occupational programs
by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	14.322	7	2.046	1.179	0.313
Location of School	8.997	1	8.997	5.183	0.023 *
Occupational Program Area	4.640	6	0.773	0.445	0.848
2-Way Interactions	11.353	6	1.892	1.090	0.367
Location x Program Area	11.353	6	1.892	1.090	0.367
Explained	25.676	13	1.975	1.138	0.324
Residual	911.433	525	1.736		
Total	937.109	538	1.742		

* $p < .05$

"occupational education teachers are qualified to plan individualized programs for handicapped students," by location of school and occupational program area are presented in Table 21. The results indicated that both location of school and occupational program area have significant effect on the teachers' perceptions of this statement. The two-way interaction effect was not significant, however. For occupational program area groups, mean scores were: distributive education, 3.08; business and office, 3.19; industrial arts, 3.38; trade and industrial, 3.56; occupational home economics, 3.57; health occupations 3.66, and agricultural education, 4.06. Multiple comparisons between the program area groups' means using Scheffé's test resulted in significant differences ($p < 10$). Agricultural education teachers differed from distributive education and business and office education teachers. Agricultural education teachers expressed the strongest agreement with this statement, while distributive education and business and office education teachers expressed the least amount of agreement with this statement. No other significant differences between the group means were found. Teachers in rural areas ($\overline{X} = 3.74$) expressed stronger agreement with this statement than teachers in urban settings ($\overline{X} = 3.37$). This difference was significant ($p < .05$). The extent of agreement expressed by both groups, however, indicated only slightly mild agreement that occupational education teachers are qualified to plan individualized programs for handicapped students.

Enrollment Size of School by Occupational Program Area

The analysis of teachers' perceptions of mainstreaming needs, barriers and related items by enrollment size of school and occupational program area involved 31 two-way analysis of variance procedures or an analysis of variance procedure for each of the three types of statements. There were two sources of limitation on the analysis of variance procedures. No allowance was made for the fact that the numbers of cases in the subclasses were unequal. The large number of analysis of variance procedures applied may have resulted in significant findings due to sample fluctuation. Due to these sources of possible limitation,

Table 21

Analysis of Teachers' Perceptions of the Related Statement:

Occupational education teachers are qualified to plan individualized programs for handicapped students

by Location of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	59.483	7	8.498	4.543	0.000
Location of School	10.992	1	10.992	5.876	0.016*
Occupational Program Area	40.377	6	6.730	3.597	0.002*
2-Way Interactions	15.153	6	2.526	1.350	0.233
Location x Program Area	15.153	6	2.526	1.350	0.233
Explained	74.637	13	5.741	3.069	0.000
Residual	967.127	517	1.871		
Total	1041.764	530	1.966		

* $p < .05$

Table 22

Analysis of Teachers' Perceptions of the Need Statement:

In order to meet the needs of the handicapped student, class size will have to be reduced

by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	19.952	7	2.850	2.663	0.010
School Enrollment	0.279	1	0.279	0.260	0.610
Occupational Program Area	19.480	6	3.247	3.033	0.006*
2-Way Interactions	2.972	6	0.495	0.463	0.836
Enrollment x Program Area	2.972	6	0.495	0.463	0.836
Explained	22.924	13	1.763	1.647	0.069
Residual	545.889	510	1.070		
Total	569.813	523	1.088		

* $p < .05$

the results and findings should be considered with some degree of tentativeness.

The level of significance for need statements number 1, 5, 6, 8, 9, 10, 12 and 13 in Table 8, for barrier statements number 1, 2, 3, 4, 5, 8, 9, 10, and 11 in Table 8, and for related items number 1, 2, 3, 4, and 6 in Table 8, exceeded the required level of significance ($p < .05$). For these needs, barriers and related items, the enrollment size of the school and the occupational program of the teacher made no significant differences in the teachers' perceptions. For the needs statements, barrier statements, and related items where significant effects were found as a result of the analysis of variance procedures, the results are presented in the following tables.

The analysis of teachers' perceptions of the need statement, "in order to meet the needs of the handicapped student, class size will have to be reduced," by enrollment size of school and occupational program area is presented in Table 22. The results indicated that the occupational program area of the teacher had significant effect on the teachers' perceptions of this particular needs statement. Mean scores for the seven occupational program groups were: business and office, 5.00; agriculture, 5.28; trade and industrial, 5.30; distributive education, 5.31; industrial arts, 5.39; health occupations, 5.63; and occupational home economics teachers, 5.72. Multiple comparisons tests using Scheffé's procedures revealed significant differences between business and office education teachers' and occupational home economics teachers' perceptions of the need to reduce class size ($\underline{p} < .10$). Business and office education teachers expressed less agreement while occupational home economics teachers expressed more agreement with this needs statement.

Increased involvement of parents in planning and implementing education programs for handicapped students was a need identified in this study and a requirement of recent federal and state legislation. The results of the analysis of teachers' perceptions of the needs statement, "parents of handicapped students need to become more knowledgeable of occupational education programs for their children," by enrollment size of school and occupational program area are shown in Table 23. The results indicated a significant effect for school enrollment size on teachers' perceptions of this need statement. Teachers in schools with enrollment less than 1,000 had a mean score of 5.32 compared to a mean score of 5.18 for teachers in schools with enrollment equal to or greater than 1,000. This difference was significant ($p < .05$). However, it should be noted that the expressed agreement among both of these teacher groups was extremely high, indicating that both teacher groups strongly agreed with this need but that teachers in smaller schools agreed more than teachers in larger schools.

The results of the analysis of teachers' perceptions of the need statement, "special instructional materials must be available to teachers with handiappped students in the classroom," by enrollment size of school and occupational program area are presented in Table 24. The results indicated that occupational program area had a significant effect on teachers' perceptions of this particular need statement. The group means for each of the occupational program areas were: agricultural, 5.05; industrial arts, 5.13; trade and industrial, 5.13; business and office, 5.35; distributive education, 5.42; occupational home economics, 5.52; and health occupations education teachers, 5.57. Multiple comparisons tests using the Scheffé procedure resulted in no significant differences between the group means for pariwise comparisons. It is likely that the significance in the F test was due to contrasts between one or more combinations of group means. These other contrasts were not investigated, however, as they were not of direct interest in relation to the objectives of the project. Agriculture, industrial arts and trade and industrial education teachers agreed less with this need statement than did the teacher group as a whole, while business and office, distributive education, occupational home economics and health occupations education teachers agreed more strongly with this need statement than did the teacher group as a whole. The mean scores for all of the groups as well as the total group indicated

Table 23

Analysis of Teachers' Perceptions of the Need Statement:

Parents of handicapped students need to become more knowledgeable of occupational education programs for their children

by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	5.164	7	0.738	1.088	0.369
School Enrollment	2.697	1	2.697	3.978	0.047 *
Occupational Program Area	3.111	6	0.519	0.765	0.598
2-Way Interactions	6.585	6	1.098	1.619	0.140
Enrollment x Program Area	6.585	6	1.098	1.619	0.140
Explained	11.750	13	0.904	1.333	0.189
Residual	358.660	529	0.678		
Total	370.410	542	0.683		

* $p < .05$

Table 24

Analysis of Teachers' Perceptions of the Need Statement:

Special instructional materials must be available to teachers with handicapped students in the classroom, e.g., Braille readers, reading materials at simplified levels, etc.

by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	15.923	7	2.275	2.593	0.012
School Enrollment	0.129	1	0.129	0.147	0.701
Occupational Program Area	15.088	6	2.515	2.867	0.009*
2-Way Interactions	2.366	6	0.394	0.450	0.845
Enrollment x Program Area	2.366	6	0.394	0.450	0.845
Explained	18.289	13	1.407	1.604	0.080
Residual	461.386	526	0.877		
Total	479.675	539	0.890		

* $p < .05$

that the teachers strongly agreed with the need for special instructional materials.

The results of the analysis of the teachers' perceptions of the needs statement, "for handicapped students, a curriculum should be developed which relates basic skills and daily living skills to vocational opportunities," by enrollment size of school and occupational program area are presented in Table 25. The results indicated a significant effect for occupational program area on teachers' perceptions of this particular need statement. Group means for the seven occupational program areas were: industrial arts, 4.74; agriculture, 4.76; trade and industrial, 5.01; business and office, 5.06; distributive education, 5.13; health occupations, 5.23; and occupational home economics teachers, 5.31. Multiple comparisons tests using Scheffé's procedure found no significant differences between the group means for pariwise comparisons. The significance in the F test was likely due to contrasts between one or more combinations of group means, which were not examined. The mean score for the total group of teachers in response to this particular need was 5.02. Industrial arts, agricultural education, and trade and industrial education teachers agreed less strongly with this particular need statement than did the teacher group as a whole. Business and office, distributive education, health occupations, and occupational home economics teachers expressed stronger agreement with this particular need statement than did the teacher group as a whole. All of the groups, however, expressed moderate to strong agreement with the need for a curriculum relating basic and daily living skills to vocational opportunities.

The need for modifying fund allocation procedures was addressed by one of the need statements in the survey questionnaire. The results of the analysis of teachers' perceptions of the need statement, "allocating state occupational funds without requiring local matching would improve programs for handicapped students," by enrollment size of school and occupational program area of the teacher are presented in Table 26. The results indicated a significant interaction effect between enrollment size of school and the occupational program area of the teacher. The nature of this interaction effect was examined more closely through multiple classi-

Table 25

Analysis of Teachers' Perceptions of the Need Statement:

For handicapped students, a curriculum should be developed which relates basic skills and daily living skills to vocational opportunities

by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	13.621	7	1.946	2.608	0.012
School Enrollment	1.701	1	1.701	2.280	0.132
Occupational Program Area	13.133	6	2.189	2.933	0.008*
2-Way Interactions	2.194	6	0.366	0.490	0.816
Enrollment x Program Area	2.194	6	0.366	0.490	0.816
Explained	15.815	13	1.217	1.630	0.073
Residual	392.490	526	0.746		
Total	408.305	539	0.758		

* $p < .05$

Table 26

Analysis of Teachers' Perceptions of the Need Statement:

Allocating State occupational funds without requiring local matching would improve programs for handicapped students

by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	10.716	7	1.531	0.771	0.612
School Enrollment	5.263	1	5.263	2.649	0.104
Occupational Program Area	5.258	6	0.876	0.441	0.851
2-Way Interactions	33.351	6	5.558	2.798	0.011
Enrollment x Program Area	33.351	6	5.558	2.798	0.011*
Explained	44.067	13	3.390	1.706	0.056
Residual	1033.135	520	1.987		
Total	1077.203	533	2.021		

* $p < .05$

fication analysis. This analysis indicated that trade and industrial education teachers in small schools perceived differently the need for eliminating local matching requirements compared with business and office education teachers, health occupations teachers, industrial arts teachers, and distributive education teachers in large schools. Trade and industrial education teachers in small schools agreed more strongly with the need for allocating funds without requiring local matching.

Need to modify existing facilities and the issue of cost associated with such modifications were combined in one of the statements of need included in the survey questionnaire. The results of the analysis of teachers' perceptions of the need statement, "existing facilities can be modified to serve handicapped students with minimum cost," by enrollment size of school and occupational program area are presented in Table 27. The results indicated that occupational program area had a significant effect on the teachers' perceptions of this particular need statement. Mean scores for each of the seven occupational program groups were: business and office, 3.67; distributive education, 3.66; industrial arts, 3.80; health occupations, 3.91; occupational home economics, 4.00; agricultural education 4.20; and trade and industrial education teachers, 4.26 . Multiple comparisons tests using Scheffé's procedure found no significant differences between the group means for pairwise comparisons. The significance in the F test was likely due to contrasts between one or more combinations of group means, which were not investigated as part of this study. The data indicated that industrial arts, health occupations, occupational home economics, agriculture and trade and industrial education teachers mildly agreed with this need statement. Business and office and distributive education teachers seemed to be evenly divided between agreement and/or disagreement on this particular need statement.

A critical area in terms of successful vocational programs for handicapped students is knowledge of employment opportunities for which handicapped students can be trained. The results of the analysis of teachers' perceptions of the barrier statement, "occupational teachers

Table 27

Analysis of Teachers' Perceptions of the Need Statement:

Existing facilities can be modified to serve handicapped students with minimum cost

by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	31.435	7	4.491	2.643	0.011
School Enrollment	0.827	1	0.827	0.487	0.486
Occupational Program Area	29.332	6	4.889	2.877	0.009*
2-Way Interactions	9.607	6	1.601	0.942	0.464
Enrollment x Program Area	9.607	6	1.601	0.942	0.464
Explained	41.042	13	3.157	1.858	0.032
Residual	893.657	526	1.699		
Total	934.700	539	1.734		

*$p < .05$

Table 28

Analysis of Teachers' Perceptions of the Barrier Statement:

Occupational teachers are generally not aware of employment opportunities available for handicapped students with occupational skills

by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	20.678	7	2.954	1.904	0.067
School Enrollment	1.233	1	1.233	0.795	0.373
Occupational Program Area	20.283	6	3.381	2.179	0.044*
2-Way Interactions	5.882	6	0.980	0.632	0.705
Enrollment x Program Area	5.882	6	0.980	0.632	0.705
Explained	26.560	13	2.043	1.317	0.198
Residual	812.903	524	1.551		
Total	839.463	537	1.563		

*$p < .05$

are generally not aware of employment opportunities available for handicapped students with occupational skills," by enrollment size of school and occupational program area are presented in Table 28. The results indicated that the occupational program area of the teacher had a significant effect on the teachers' perception of this particular barrier. The group means of the seven occupational program areas on this barrier statement were: health occupations, 3.66; agricultural education, 3.97; occupational home economics, 4.21; business and office, 4.31; trade and industrial education, 4.32; distributive education, 4.33; and industrial arts teachers, 4.42. Multiple comparisons tests using the Scheffé procedure found no significant differences in pairwise comparisons of the group means. It is likely that the significance in the F test was due to contrasts between one or more combinations of group means. These contrasts were not of direct interest in the study and were not examined. The data suggested mild agreement with this barrier item generally for the teacher groups. However, the extent of agreement was less for health occupations and agricultural education teachers in comparison to the industrial arts teachers.

The results of the analysis of teachers' perceptions of the barrier statement, "most occupational teachers are inadequately prepared to handle the education of the handicapped student in their classes," by enrollment size of school and occupational program area are presented in Table 29. The results indicated a significant effect on teacher's perceptions of this barrier due to occupational program area. Mean scores for the teacher groups on this barrier item were: agriculture, 3.67; health occupations 3.88; industrial arts, 4.13; business and office, 4.19; occupational home economics, 4.21; trade and industrial education 4.27; and distributive education, 4.42. Multiple comparison tests using Scheffé's procedure revealed no significant differences between any of the group means in pairwise comparisons. The significance in the F test was likely due to contrasts between one or more combinations of groups means, which were not examined. The data suggested that agricultural, health occupations and industrial arts teachers agreed less with this barrier item than did the teachers as a whole, while business and office, trade and industrial and

Table 29

Analysis of Teachers' Perceptions of the Barrier Statement: *Most occupational teachers are inadequately prepared to handle the education of the handicapped student in their classes* by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	33.035	7	4.719	2.471	0.017
School Enrollment	6.651	1	6.651	3.482	0.063
Occupational Program Area	30.233	6	5.039	2.638	0.016*
2-Way Interactions	8.187	6	1.364	0.714	0.638
Enrollment x Program Area	8.187	6	1.364	0.714	0.638
Explained	41.222	13	3.171	1.660	0.066
Residual	1000.834	524	1.910		
Total	1042.055	537	1.941		

*$p < .05$

Table 30

Analysis of Teachers' Perceptions of the Related Statement: *Occupational education teachers are qualified to plan individualized programs for handicapped students* by Enrollment Size of School and Occupational Program Area

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	49.754	7	7.108	3.816	0.000
School Enrollment	1.262	1	1.262	0.678	0.411
Occupational Program Area	44.815	6	7.469	4.010	0.001*
2-Way Interactions	28.891	6	4.830	2.593	0.017
Enrollment x Program Area	28.981	6	4.830	2.593	0.017*
Explained	78.736	13	6.057	3.251	0.000
Residual	963.029	517	1.863		
Total	1041.764	530	1.966		

* $p < .05$

distributive education teachers expressed stronger agreement with this barrier compared to the teacher group as a whole.

Related to the adequacy of the teachers' preparation to deal with handicapped students in the regular classroom is the teachers' abilities and qualifications to plan individualized programs for handicapped students, a requirement of new federal and state legislation. The results of the analysis of teachers' perceptions of the related statement, "occupational education teachers are qualified to plan individualized programs for handicapped students," by enrollment size of school and occupational program area are presented in Table 30. The results of the analysis indicated significant effect on teachers' perceptions of this statement due to occupational program area and also due to the interaction between the enrollment size of the school and the occupational program area of the teacher. Group means for the seven occupational program areas were: distributive education, 3.08; business and office, 3.19; industrial arts, 3.39; trade and industrial, 3.56; occupational home economics, 3.58; health occupations, 3.66; and agricultural education teachers, 4.06. Multiple comparisons tests using Scheffé's procedure identified a significant difference between agricultural education teachers and distributive education and business and office occupations teachers ($p < .10$). Agricultural education teachers expressed mild agreement with this statement; distributive and business and office education teachers expressed mild disagreement with this statement. No other significant differences between the group means were found. The interaction effect of enrollment size of school and occupational program area was examined further by multiple classification analysis. The analysis indicated that business and office occupations teachers in large schools, distributive education teachers in large schools and industrial arts teachers in large schools expressed less agreemennt with this statement compared with agricultural teachers in small school and health occupations teachers in small schools. The latter two groups expressed more agreement on this particular statement than did the teachers as a whole.

Location of School by Enrollment Size of School

The analysis of teachers' perceptions of mainstreaming needs, barriers and related items by location of school and enrollment size of school involved thirty-one two-way analysis of variance procedures. or an analysis of variance procedure for each of the three types of statements. There were two sources of limitation on the analysis of variance procedures. First, no allowance was made for the fact that the number of cases in the subclasses were unequal. Secondly, the large number of analysis of variance procedures applied may have resulted in significant findings due to sample fluctuation. With consideration of these sources of possible limitation, the results and findings presented herein should be received with some degree of tentativeness.

The level of significance of F for all of the needs statements list in Table 8, for barrier statements number 1, 3, 6, 7, 8, 9, 10, and 11 in Table 8, and for related items number 1, 2, 3, and 6 in Table 8 exceeded the required level of significance ($p < .05$). For all the needs statements and these specific barrier statements and related items, the school location and the enrollment size of the school made no significant difference in the teachers' perceptions. For the barriers and related items where significant effects were found as a result of the analysis of variance procedure, the results are presented in the following tables.

Sufficient funding to purchase equipment and materials was identified as a barrier in the survey. The results of the analysis of teachers' perceptions of the barrier statement, "school systems do not have sufficient funds to purchase necessary equipment or materials to facilitate the individual needs of the handicapped student," by location of school and enrollment size of school are presented in Table 31. The results indicated significant effect on teachers' perceptions of this barrier due to the location of the school. Teachers in rural areas expressed

Table 31

Analysis of Teachers' Perceptions of the Barrier Statement: *School systems do not have sufficient funds to purchase necessary equipment or materials to facilitate the individual needs of the handicapped student* by Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	25.329	2	12.664	7.583	0.001
Location of School	21.505	1	21.505	12.877	0.000*
School Enrollment	0.076	1	0.076	0.046	0.831
2-Way Interactions	0.033	1	0.033	0.020	0.887
Location x Enrollment	0.033	1	0.033	0.020	0.887
Explained	25.363	3	8.454	5.062	0.002
Residual	880.148	527	1.670		
Total	905.511	530	1.709		

* $p < .05$

Table 32

Analysis of Teachers' Perceptions of the Barrier Statement: *Occupational teachers do not have the time to perform tasks (such as developing individual instructional programs) necessary to work with handicapped students* by Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	6.688	2	3.344	1.790	0.168
Location of School	0.839	1	0.839	0.449	0.503
School Enrollment	6.686	1	6.686	3.578	0.059
2-Way Interactions	12.065	1	12.065	6.458	0.011
Location x Enrollment	12.065	1	12.065	6.458	0.011*
Explained	18.753	3	6.251	3.346	0.019
Residual	984.638	527	1.868		
Total	1003.391	530	1.893		

* $p < .05$

significantly stronger agreement with this barrier statement than did teachers in urban settings. The group mean score for rural teachers was 4.80 and the group mean score for urban teachers was 4.40. Generally, both urban and rural teachers expressed moderate agreement with lack of funds for materials and equipment as a barrier to meeting the invididual needs of the handicapped students.

One reason for reluctance on the part of teachers to accept the integration of handicapped students is the additional time required of the teacher to work with handicapped students. The results of the analysis of teachers' perceptions of the barrier statement, "occupational teachers do not have the time to perform tasks necessary to work with handicapped students," by location of school and enrollment size of school are presented in Table 32. The results indicated a significant interaction effect on teachers' perceptions. Multiple classification analysis indicated that teachers in large schools in urban and rural areas agreed more strongly with this barrier while teachers in small schools in rural areas agreed less with this barrier.

Occupational education teachers in rural areas expressed stronger agreement than did teachers in urban areas in their perceptions of the barrier statement, "federal and state program guidelines restrict local flexibility in using funds to meet local needs." Table 33 presents the results of the analysis of teachers' perceptions of this barrier statement by location of school and enrollment size of school. The results indicated a significant effect on the teachers' perceptions due to the location of the school. The mean group score for rural teachers was 4.41 compared with a mean score for the urban teacher group of 4.14. The difference was significant($p < .05$). Stronger agreement by teachers in rural areas to this particular barrier statement may be related to the fact that, generally, smaller school systems are located in the rural areas. Since funding of handicapped programs has been on an ADM basis, schools located in rural areas may receive an insufficient amount of funds to adequately launch a program. It may also be more difficult for the smaller school systems located in rural areas to generate local matching funds.

Table 33

Analysis of Teachers' Perceptions of the Barrier Statement:

Federal and State program guidelines restrict local flexibility in using funds to meet local needs

by Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	9.355	2	4.678	3.113	0.045
Location of School	7.350	1	7.350	4.891	0.027*
School Enrollment	0.175	1	0.175	0.116	0.733
2-Way Interactions	0.010	1	0.010	0.007	0.934
Location x Enrollment	0.010	1	0.010	0.007	0.934
Explained	9.366	3	3.122	2.077	0.102
Residual	791.995	527	1.503		
Total	801.361	530	1.512		

* $p < .05$

Table 34

Analysis of Teachers' Perceptions of the Related Statement:

Cooperative education programs have more potential for effectively serving handicapped students than do regular occupational programs

by Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	10.216	2	5.108	2.961	0.053
Location of School	7.067	1	7.067	4.096	0.043*
School Enrollment	0.534	1	0.534	0.310	0.578
2-Way Interactions	3.939	1	3.939	2.284	0.131
Location x Enrollment	3.939	1	3.939	2.284	0.131
Explained	14.156	3	4.719	2.735	0.043
Residual	922.953	535	1.725		
Total	937.109	538	1.742		

* $p < .05$

Teachers in rural areas, compared with teachers in urban areas, expressed stronger agreement with the statement that "cooperative education programs have more potential for serving handicapped students than do regular occupational programs." Table 34 presents the results of the analysis of teachers' perceptions of this related statement by location of school and enrollment size of school. The results indicated a significant effect for the location of school variable on teachers' perceptions of this particular statement. While neither group registered substantial agreement with this particular item, the differences between the perceptions of urban and rural teachers was significant ($p < .05$). The mean score for the urban teacher group was 3.66 which indicated very slight agreement with this particular statement. The mean score for the rural teacher group was 3.93, which indicated slight to mild agreement with this statement. Rural teachers, probably less experienced with cooperative education programming, see more potential for effectively serving handicapped students in this manner than urban teachers, who have probably had more exposure to coop type programs. Consequently, the assessment of the potential of cooperative education programs by the urban teachers may be more experientially based. As was pointed out earlier in the report, enrollment data for school year 1976-1977 indicated that of those handicapped students enrolled in regular vocational skill training programs, approximately 25% were enrolled in cooperative education courses. Occupational education teachers as a whole do not express strong agreement with the generalization that cooperative programs have more potential than regular programs for meeting the needs of handicapped students.

The results of the analysis of teachers' perceptions of the related statement, "occupational education teachers are qualified to plan individualized programs for handicapped students," by location of school and enrollment size of school are presented in Table 35. The results indicated a significant effect on teachers' perceptions of this statement by location of school. Teachers in urban settings ($\overline{X} = 3.37$) expressed slight disagreement with this statement. Teachers in rural settings ($\overline{X} = 3.74$) expressed slight agreement with this statement. The difference between the perceptions of the two teacher groups was significant ($p < .05$).

Differences in Principals' Perceptions of Needs, Barriers and Related Items Related to the Enrollment Size of School and Location of School

Information obtained on principals' perceptions of mainstreaming needs, barriers and related items presented earlier in Table 9 was examined further to determine if principals' perceptions differed according to enrollment size and location of school. To test for differences in principals' perceptions, multiple analysis of variance procedures using SPSS subprogram ANOVA were employed. Specifically, 31 two-way analysis of variance procedures were computed for location of school by enrollment size of school. Significance at the .05 level was required to reject the hypothesis of no differences. Where significant two-way interactions were observed, the nature of the interaction was examined using multiple classification analysis, an SPSS subprogram option for determining the patterns of the effects of one variable as other variables are controlled.

Table 35

Analysis of Teachers' Perceptions of the Related Statement:

Occupational education teachers are qualified to plan individualized programs for handicapped students

by Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	19.737	2	9.868	5.089	0.006
Location of School	14.797	1	14.797	7.630	0.006*
School Enrollment	0.630	1	0.630	0.325	0.569
2-Way Interactions	0.036	1	0.036	0.019	0.892
Location x Enrollment	0.036	1	0.036	0.019	0.892
Explained	19.773	3	6.591	3.399	0.018
Residual	1021.991	527	1.939		
Total	1041.764	530	1.966		

* $p < .05$

In this particular part of the data analysis, 31 two-way analyses of variance tables were computed. Significant main effects and/or interaction effects were observed in only two of the analysis of variance tables.

There were two sources of limitations on the analysis of variances procedures. First, no allowance was made for the fact that there were unequal numbers of cases in the subclasses. The F test may have produced either a larger or smaller proportion of significant F ratios than is warranted by the F distribution. Secondly, some of the results were expected to be significant due to sample fluctuation because of the large number of analysis of variance procedures applied. The findings presented should, therefore, be considered with some degree of tentativeness. For purposes of brevity in presenting the results, only those two tables in which significance due to main or interaction effects were observed are reported on in this report.*

Two-way analysis of variance tables were computed for the principal data on each of the needs, barriers and related items listed in Table 9. No significant differences in principals' perceptions of the mainstreaming needs were found. Also, no differences were found in the principals' perceptions of the related statements. For the barrier statements, principals' perceptions did not differ for nine of the barrier statements listed in Table 9 (numbers 1, 3, 4, 5, 6, 7, 9, 10, and 11). For barrier statements #2 and #8 in Table 9 significant differences in the principals' perceptions were found.

For the barrier statement, "employers in business and industry are reluctant to hire handicapped students who have completed an occupational skill training program," the two-way analysis of variance showed significance for the main effect of school location (See Table 36). Principals

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* The results of the analysis of variance procedures which were not significant are available from the author upon request.

Table 36

Analysis of Principals' Perceptions of the Barrier Statement:
Employers in business and industry are reluctant to hire handicapped students who have completed an occupational skill training program

by Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	7.427	2	3.714	3.328	0.040
Location of School	6.126	1	6.126	5.490	0.021*
School Enrollment	2.047	1	2.047	1.834	0.179
2-Way Interactions	1.386	1	1.386	1.242	0.268
Location x Enrollment	1.386	1	1.386	1.242	0.268
Explained	8.813	3	2.938	2.633	0.055
Residual	101.544	91	1.116		
Total	110.357	94	1.174		

* $p < .05$

Table 37

Analysis of Principals' Perceptions of the Barrier Statement:
Not enough support personnel (aides, tutors, etc.) are available to help teachers provide occupational instruction to handicapped students

by Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects	4.110	2	2.055	1.942	0.149
Location of School	3.211	1	3.211	3.034	0.085
School Enrollment	0.526	1	0.526	0.497	0.482
2-Way Interactions	0.783	1	0.783	0.740	0.392
Location x Enrollment	0.783	1	0.783	0.740	0.392
Explained	4.893	3	1.631	1.541	0.209
Residual	96.307	91	1.058		
Total	101.199	94	1.077		

* $p > .05$

in rural environments had a higher mean score ($\bar{X} = 4.00$) than did principals in urban environments ($\bar{X} = 3.53$). The difference was significant. Principals of schools located in urban settings were evenly divided in terms of agreement and disagreement with this barrier statement. Principals in rural environments expressed mild agreement that employer reluctance in hiring the handicapped is a barrier.

The results of the two-way analysis of variance of principals' perceptions of the barrier statement, "not enough support personnel (aides, tutors, etc.) are available to help teachers provide occupational instruction to handicapped students," are presented in Table 37. The main effect of location of school approached significance although the result was not statistically significant. However, a comparison of the means of the two groups using one-way analysis of variance found the difference to be significant ($p < .05$). Urban principals agreed less with this statement as a barrier ($\bar{X} = 4.56$) than their rural counterparts ($\bar{X} = 5.00$). Rural principals were inclined to view lack of support personnel as more of a barrier in providing occupational instruction to handicapped students than were principals in urban settings.

Teachers' Attitudes Toward Mainstreaming

Teachers'attitudes toward mainstreaming were measured by using a subscale of 8 items selected from the questionnaire on mainstreaming, the M-Scale. The relationship between teachers' attitudes toward mainstreaming and the occupational program area of the teacher, enrollment size of the school and the location of the school was examined. The null hypothesis was tested, with a significance level of .05 or below required to reject the null hypothesis. The effect of vocational program area, location of school, and enrollment size of school on teachers' attitudes toward mainstreaming was examined by a three-way analysis of variance procedure using the MANOVA program developed by Cramer (Triangle Universities Computation Center, 1971). The results of this analysis are presented in Table 38. No significant interaction

Table 38

Analysis of Teachers' Attitudes Toward Mainstreaming by Vocational Program Area, Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects:					
Vocational Program Area	112.850	6	18.808	0.574	0.751
Enrollment Size of School	4.169	1	4.169	0.127	0.721
Location of School	23.729	1	23.729	0.725	0.395
2-Way Interactions:					
Program Area X Enrollment	180.980	6	30.163	0.921	0.479
Enrollment X Location	36.775	1	36.775	1.123	0.289
Location X Program Area	87.340	6	14.556	0.445	0.849
3-Way Interactions					
Program Area X Location X Enrollment	139.130	6	23.188	0.708	0.643
Residual	16,286.690	497	32.77		
Total	16,871.663	524			

$p > .05$

or main effects were found. The findings indicated that teachers' attitudes toward mainstreaming as measured by the 8-item subscale from the M-scale, were not affected by the vocational program area of the teacher, the location of the school, or the enrollment size of the school.

Teachers' attitudes toward mainstreaming were hypothesized to be related to the teachers' educational orientation, the teachers' acceptance of the handicapped and the teachers' change orientation. To examine the relationship between teacher attitude toward mainstreaming and these other three teacher attitude measures, Pearson product-moment correlations were computed. The teachers' educational orientation as measured by the Education Scale VII had a correlation with the teachers' attitudes toward mainstreaming of -0.24 (N=544).* This correlation coefficient was significant at the .001 level. The change orientation of teachers was measured by the Change Orientation Instrument and scores were correlated with teachers' attitude toward mainstreaming resulting in a correlation coefficient of -0.27 (N = 537). This correlation coefficient was also significant at the .001 level. The correlation between teachers' acceptance of the handicapped as measured by the Attitudes Toward Handicapped Individuals scale (ATHI) and teachers' attitudes toward mainstreaming resulted in a correlation coefficient of -0.41 (N = 536), which was significant at the .001 level.

Of the three attitude measures which were correlated with teacher attitude toward mainstreaming, teacher attitude toward handicapped individuals had the highest correlation. A comparison was made between teacher attitude toward handicapped individuals and the three classification variables: vocational program area, enrollment size of school and location of school. This comparison was done using a three-way analysis of variance procedure. The results are presented in Table 39. The results indicated that neither the vocational program area, enrollment size of school, nor the location of the school had any significant effect on teachers' attitudes toward the handicapped. The interaction effect between enrollment size of school and location of school did approach significance at the .05 level (F = 3.014, p = 0.083).

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* A low score on the 8-item subscale measure of attitudes toward mainstreaming was interpreted to mean positive acceptance of the mainstreaming approach.

Table 39

Analysis of Teachers' Attitudes Toward Handicapped Individuals by Vocational Program Area, Enrollment Size of School and Location of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects:					
Vocational Program Area	1589.660	6	264.944	1.365	0.227
Enrollment Size of School	344.257	1	344.257	1.773	0.184
Location of School	315.403	1	315.403	1.624	0.203
2-Way Interactions:					
Program Area X Enrollment	1486.420	6	247.737	1.276	0.267
Enrollment X Location	585.149	1	585.149	3.014	0.083
Location X Program Area	1469.70	6	244.950	1.262	0.273
3-Way Interactions:					
Program Area X Location X Enrollment	841.460	6	140.244	0.722	0.632
Residual	96,467.700	497	194.170		
Total	103,099.749	524			

$p > .05$

While the correlation coefficients found between the three attitude measures when computed individually with the teachers' attitude toward mainstreaming were significant, the variance accounted for did not exceed 20% in any case. An additional procedure, multiple regression analysis, examined the correlation between these three variables in combination with teacher attitude toward mainstreaming. The multiple R obtained was 0.474, accounting for 22.45 percent of the variance. While the relationships between these three attitude measures individually or in combination were significantly related to teachers' attitudes toward mainstreaming, the strength of these relationships in terms of explained variance was not substantial. Teachers who are accepting of handicapped individuals may disagree with mainstreaming as an educational philosophy and practice and feel that more traditional approaches are both appropriate and effective.

The relationships between educational orientation and attitudes toward mainstreaming and change orientation and attitudes toward mainstreaming were found to be significant, but did not account for substantial variance. A possible explanation for the observed weakness of the relationships is related to the criterion measure, the 8-item subscale from the M-Scale. A split-half reliability measure of the attitude toward mainstreaming scores was obtained using the Spearman-Brown formula (Anastasi, 1969, pp. 82-83). The reliability coefficient was .664, and suggests caution in using the measure for making individual predictions, and for discriminating between individuals on their attitude toward mainstreaming using related attitude measures. However, for comparing groups, this level of reliability was considered adequate.

Principals' Attitudes Toward Mainstreaming

The relationship between principals' attitudes toward mainstreaming and the classification variables of enrollment size of school and location of school was examined using a two-way analysis of variance procedure. The results of this analysis are presented in Table 40. The results indicated no significant differences between principals' attitudes toward mainstreaming as a result of school location, school size, or the interaction of these two variables. The attitudes of principals toward mainstreaming were not influenced significantly by the location of the school or the enrollment size of the school.

Table 40

Analysis of Principals' Attitudes Toward Mainstreaming Handicapped Students by Location of School and Enrollment Size of School

Source of Variation	Sum of Squares	df	Mean Square	F	Significance of F
Main Effects:					
Location of School	11.068	1	11.068	0.386	0.536
Enrollment Size of School	7.818	1	7.818	0.273	0.603
2-Way Interactions:					
Location X Enrollment	50.414	1	50.414	1.758	0.188
Residual	2666.310	93	28.67		
Total	2735.610	96			

$p > .05$

IV. CONCLUSIONS

There was general agreement among the teachers and principals on the needs which must be met and the barriers which must be overcome in mainstreaming handicapped students in preparatory occupational education programs.

For teachers, the priority needs included the following:

1) school personnel need to attend in-service workshops on occupational education,
2) class size needs to be reduced,
3) parents' knowledge of occupational education programs needs to be increased,
4) special instructional materials need to be provided,
5) school placement personnel need to attend in-service workshops on vocational education,
6) diagnostic personnel need to be available, and
7) curriculum development activities, particularly those which relate basic and daily living skills to vocational opportunities, need to be undertaken.

For teachers, the major barriers to successful implementation of the mainstreaming approach were:

1) the lack of support personnel,
2) insufficient funds for purchasing needed equipment and materials,
3) the lack of resources in smaller school systems,
4) lack of teacher time,
5) the restrictiveness of federal and state program guidelines on local flexibility in using funds,
6) lack of awareness among occupational educational teachers of employment opportunities for handicapped students,
7) inadequate teacher preparation, and
8) lack of accessible facilities.

Teachers also expressed moderate to strong agreement that (1) in-service education programs can change teacher attitudes, (2) labeling leads to segregation of the handicapped into special programs, and (3) different teaching methods will be required to serve the handicapped student in occupational education programs.

Several of the needs identified by the teachers were related to the need for increased communication within the school and with parents about occupational education. Communication within the school and between the school and the community, particularly with parents, is an important dimension if the human and material resources of the school and the community are to be coordinated and fully utilized in the implementation of a mainstreaming program.

The lack of support personnel as a barrier was reflected in the need for additional diagnostic personnel and the need to reduce class size. The availability of support personnel, for example, classroom aides, diagnostic personnel, curriculum development specialists, etc., may minimize the need for class size reduction. If adequate levels of support personnel are available, then the occupational education teacher may not feel overwhelmed by the task of serving handicapped students in his or her classroom, and will have the time to plan and implement programs for handicapped students utilizing the resources available in a coordinated support system.

The inadequate preparation of occupational education teachers for working with handicapped students is amplified by the expressed agreement with the statement that occupational education teachers will have to employ different teaching methods in order to serve the handicapped in their classes.

The priority needs and major barriers which received substantial expressions of agreement among the teachers are interrelated. As needs are met, barriers will be reduced; as barriers are overcome, needs will be minimized.

For principals, priority needs included:

1) diagnostic personnel,
2) reduction of class size,
3) the need for parents to become more knowledgeable of occupational education programs,
4) the need for special instructional materials,
5) transportation services for handicapped students enrolled in cooperative education programs,
6) the need for school placement personnel to attend in-service education programs,
7) the need for curriculum materials which relate basic and daily living skills to occupational opportunities, and
8) the need for school personnel to attend in-service education programs on vocational education.

For principals, the major barriers which must be overcome if mainstreaming is to be implemented successfully were:

1) insufficient funds for equipment and materials,
2) lack of support personnel,
3) restrictiveness of federal and state program guidelines on using funds at the local level,
4) lack of resources among smaller school systems,
5) lack of awareness among occupational education teachers of employment opportunities for the handicapped,
6) inadequate preparation of teachers, and
7) lack of accessible facilities.

Related to these priority needs and major barriers, principals also expressed strong agreement that (1) in-service education programs can change attitudes toward the handicapped, (2) labeling of students as handicapped leads to their segregation into special program groups, and (3) different teaching methods must be employed if handicapped students are to be served in the regular occupational education programs.

Program Implications

The priority needs and major barriers identified by teachers and principals, and differences in teachers' perceptions and principals' perceptions on the needs, barriers and related items have important implications for the development and implementation of mainstreaming programs for the handicapped in occupational education.

The priority needs and major barriers indicate those program aspects which should be given attention in initial planning and in the allocation of resources to support a mainstreaming program.

The priority needs and major barriers which received substantial agreement among the principals were almost exactly the same as those for teachers, except for differences in their perceived importance. In comparing teachers' and principals' perceptions, it was observed that teachers and principals were in general agreement on a majority of items (28 out of 32) related to mainstreaming attitudes, needs, barriers and related issues.

The finding in this study that teachers and principals expressed general agreement on the needs and barriers and held similar attitudes toward mainstreaming has important implications for the planning and implementation of mainstream programs. The general agreement found related to what the needs and barriers are should facilitate planning and implementation. If there is general agreement as to what the problems are, then energies can be devoted to arriving at solutions. Little time need be taken in attempting to resolve differences in perceptions or reaching agreement as to what problems should be addressed. Principals and teachers were neither highly accepting nor highly rejecting of the mainstreaming approach. Their attitudes were similar, and suggest that they would be receptive to a mainstreaming approach, if adequately planned and implemented. It will be important to assure that an adequate level of information about mainstreaming is shared by all, that teachers and principals fully understand the historical and legal developments, and that teachers and principals are involved in planning for the implementation of mainstream programs.

Differences in teachers' perceptions and principals' perceptions, where observed, point to those areas where planning should take into account perceived differences due either to occupational program area, location of school, enrollment size of school, or an interaction between these variables.

Several differences in teachers' perceptions on the priority needs and major barriers were noted due to occupational program area, enrollment size and/or location of school. For example, the need to reduce class size was perceived differently by occupational home economics teachers and business and office education teachers. Business and office education teachers agreed less with the need for reducing class size than did the occupational home economics teachers. However, both groups expressed moderate to strong agreement with this particular need.

Agricultural, industrial arts and trade and industrial education teachers expressed less agreement with the need for special instructional materials than did the teacher group as a whole. Similarly, industrial arts, agricultural and trade and industrial education teachers expressed less agreement with the need for curriculum development activities which relate basic skills and daily living skills to vocational opportunities compared with the other four teacher groups.

Agricultural education, health occupations and industrial arts teachers agreed less with the barrier of inadequate teacher preparation in comparison with the teacher group as a whole. Business and office, occupational home economics, trade and industrial and distributive education teachers expressed stronger agreement with the barrier compared with the teacher group as a whole. Staff development activities to increase occupational teachers' skills in working with handicapped students should be designed with these differing perceptions in mind. Agricultural, health and industrial arts teachers feel better prepared, hence, more competent and confident in working with handicapped students.

Another of the major barriers on which teachers' perceptions differed was the lack of awareness among occupational education teachers of employment opportunities for handicapped students. Health occupations and agricultural education teachers agreed less with this barrier statement than the other five occupational program groups. Efforts to increase teachers' awareness of employment opportunities available for the handicapped should target these other program areas, especially trade and industrial and distributive education teachers.

One difference in teachers' perceptions due to the enrollment size of the school was observed on the priority need for increasing parents' knowledge of occupational education programs. Teachers in schools with enrollment less than 1,000 agreed slightly more than teachers in larger schools, although both teacher groups strongly agreed with this need. From the standpoint of mainstream programming, parental involvement will be critical to the success of the program. More awareness of options available for handicapped students in occupational education among parents will help to make their involvement worthwhile.

The location of the school, urban or rural, had an effect on teachers' perceptions of two of the major barriers. Teachers in rural areas expressed stronger agreement that insufficient funds for purchasing equipment and materials was a barrier than did teachers in urban settings. Funding programs to overcome this barrier may need to be designed so that they will have more impact on school systems located in rural areas, where this barrier was perceived more strongly. Teachers in rural areas also expressed stronger agreement that federal and state program guidelines were restrictive; and limited local flexibility in using funds to meet local needs. Because funding for handicapped programs is allocated on the basis of average daily membership with required matching, smaller school systems located in rural areas may receive insufficient amounts of funds which they also experience difficulty in matching. A change in the fund allocation procedures might be beneficial to smaller school systems located in rural areas.

The interaction effect of location and enrollment affected teachers' perceptions of the barrier related to lack of teacher time to perform tasks necessary to work with handicapped students. Teachers in small schools located in rural areas agreed less with this barrier than did teachers in large schools located in urban and rural areas. Teachers in small schools, especially those in rural areas, did not perceive that additional tasks associated with serving handicapped students would demand an inordinate amount of their time. Those involved in planning for the implementation of a mainstreaming program must be sensitive to teachers' concerns about time. Careful planning and specification of instructional tasks will help to alleviate this concern.

One difference in principals' perceptions of one of the major barriers was observed. Principals in rural areas expressed stronger agreement that lack of support personnel was a barrier in providing occupational education to handicapped students compared to principals in urban settings. School systems located in urban areas are likely to have a greater array of support services available than those located in rural areas. Rural systems, which already operate with limited support services, will be more hard-pressed to easily accommodate an educational change such as mainstreaming without some additional services being made available.

Limitations of the Study

There were several aspects of the study which potentially limit the generalizability of the results and findings and their implications for program planning and implementation. These were related to:

1) the use of local administrators to develop the content base for the questionnaire on mainstreaming,
2) the lack of a followup survey on non-respondents,
3) terminology used in writing statements on the questionnaire on mainstreaming, and
4) data analysis and statistical considerations.

In the design of the study, the first phase involved the utilization of local vocational education administrators to identify needs and barriers to mainstreaming. The needs and barriers identified served as the content base for the development of the questionnaire on mainstreaming which was administered to teachers and principals. To the extent that teachers and principals would have identified additional needs and barriers than those identified by the local administrators, the questionnaire on mainstreaming could be considered incomplete. There is no doubt, however, that the needs and barriers identified by local administrators generally received expressions of agreement from the teachers and principals surveyed. The possible limitation is that the original content base for the questionnaire on mainstreaming may have excluded potentially important needs or barrier items which either teachers or principals would have suggested. This limitation was minimized by the field-testing of the questionnaire with randomly selected groups of 40 teachers and 10 principals. The field-test survey did not result in any additions to the needs and barrier statements; four items were eliminated due to unnecessary redundancy.

Overall, the response rate on the survey of teachers and principals was 62%. Reasonable attempts were made to insure the highest possible response rate. No attempt, however, was made to conduct a followup survey of non-respondents; therefore, the generalizability of the results and findings from the study are based on the assumption that non-respondents did not significantly differ from respondents in their perceptions of needs, barriers and related items or in their attitudes toward mainstreaming.

Comments made by teachers and principals on the comment sheet which was included in the questionnaire package indicated that both teachers and principals, but primarily teachers, experienced some problems in responding to certain items because of the use of general rather than specific terminology. This was particularly true for the term "handicapped." The term "handicapped" was used in a general fashion and was intended to be interpreted as including all types of handicapping conditions. The comments received from teachers and principals suggested that, in some cases, perceptions of needs and barriers might have been different if the situation was specific with respect to a mentally handicapped child, a physically handicapped child, etc.

Attempts to accommodate all the various types of handicapping conditions into the questionnaire would have made it more lengthy and administratively burdensome.

The decision to use the general term, "handicapped," was made in recognition of the trade-off between increased specificity of handicapping conditions and the need for a reasonably easy, self-administering questionnaire which would minimize the burden of completion for the respondent. The results and findings of the study, therefore, address the handicapped population in general and do not distinguish or differentiate between specific handicapping conditions.

The data analysis and statistical tests employed multiple analysis of variance procedures and the F test for statistically significant differences. There are two implications for study limitations. First, some bias was introduced in the F test as a result of unequal numbers in the subclasses. No allowance was made for this fact. The implication is that the F test may have produced either a larger or smaller proportion of significant F ratios than is warranted by the F distribution. Secondly, because of the large number of analysis of variance procedures applied, some of the results may have been significant due to sample fluctuation. Interpretation of the results and findings presented, therefore, should be considered with some degree of tentativeness.

V. RECOMMENDATIONS

Recommendations in three broad groupings are made based upon results and findings of the study, as follows: (1) actions utilizing project products, (2) overcoming the major barriers identified in the study which received substantial agreement from both teachers and principals, and (3) program coordination.

Actions Utilizing Project Products

Immediate assistance can be provided to program planners/administrators by actions that build upon the products resulting from this study. Some of these are as follows:

1) Develop a brief, simplified needs and barriers assessment instrument designed to be administered on a regional or local basis, and that yields program planning/administration/budgeting data useful to local planners and directors. The instrument design can be structured to facilitate comparison with the statewide findings and results of this project. The questionnaire on mainstreaming (M-Scale) provides an initial design of a needs assessment instrument that could be used at regional and local education levels.

2) Utilize the data base now available for programming actions for overcoming barriers. The data base is so structured that studies can be designed easily to meet particular program planning needs. For example, the data can be used in designing workshops and other staff development activities.

3) Refine need and barrier generalizations by incorporating specific handicapping conditions in replications of this study. For example, a study to determine to what extent attitudes, needs and barriers differ for different handicapped groups could be undertaken with little or no change to the methodology demonstrated. Results could be oriented to meeting particular needs of specific handicapped groups.

Recommendations for Overcoming Major Barriers

A major objective of the study was the development of strategies for overcoming barriers to mainstreaming. Recommendations are made which focus on the seven major barriers which received the strongest expressions of agreement from both teacher and principal groups.

1. To overcome the barrier of insufficient funds for equipment and materials, it is recommended that the following actions be taken:

    a) Teachers and principals be made more aware of the availability of resource materials in the regional education centers.

    b) The Division of Vocational Education support area-wide grants for new equipment and material items, using set-aside funds from its handicapped allocation and other sources.

    c) Regional education center staff should provide technical assistance to vocational education teachers in developing teacher-made materials to be used at the classroom level.

2. To overcome the barrier of lack of support personnel, it is recommended that utilization of existing support personnel be increased and that additional support personnel be made available. Existing support personnel could be utilized more fully if communication within school systems increases. The need for increased communication within schools about occupational education was a priority need identified in this study. The implementation of individualized education plans (IEPs) as required by new federal and state legislation provides the impetus for increased coordination and utilization of existing resources. It is imperative that occupational education teachers have an active role in local school-based planning committees which have responsibility for overseeing the implementation of this aspect of the equal educational opportunities legislation. This will provide an excellent opportunity for increasing the utilization of existing support services and personnel by vocational education teachers.

Additional support personnel must also be made available. It is unrealistic to think that more handicapped students can be served in the mainstream without providing additional resources and personnel. To facilitate the mainstreaming approach for handicapped students, where handicapped students will be enrolled in regular occupational education program courses, supportive services must be available.

The need for diagnostic personnel has been identified in this study as a priority need by both teachers and principals. The needs expressed for curriculum and instructional materials suggest the desirability of having available the support services of a specialist in curriculum and materials.

The availability of curriculum and instructional materials related to career and vocational education for handicapped students continues to increase. The curriculum and materials specialist can assist local programs in acquiring, adapting and implementing these curriculum programs. For example, the Vocational Education/Special Education Project at Central Michigan University[*/] has identified and developed 10 cluster areas of occupations and, within each of these cluster areas, subclusters have been identified. Occupations associated with each subcluster have been subjected to task analysis. Curriculum materials have been developed around specific tasks related to these occupations. In addition 160 enablers, or prerequisite skills, have also been identified and are included in the vocational training curriculum.

The project primarily involves curriculum development in support of a resource room program model. Students are enrolled part-time in special education programs and part-time in vocational education

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[*/] Additional information and curriculum guides developed in this project may be obtained by contacting Mrs. Cleo Johnson, Vocational Education/Special Education Project, Sloan Hall, Central Michigan University, Mt. Pleasant, Michigan 48859.

programs. A major emphasis of the curriculum materials is cooperation between the special educator and the vocational educator.

Another example of a project which emphasized curriculum materials development is one conducted by System Sciences, Inc. (Rice and Etheridge, 1977)*. This project developed a model program for new careers for handicapped students in the Communication and Media Cluster. One of the components of this model program is a career awareness curriculum for grades 1-12 that includes (1) introduction to careers, (2) life skills, and (3) specific skill training curriculum in 8-10 occupations.

Special education resource teachers, working with students in the related academic areas, can provide assistance and support to the occupational education instructor. In providing occupational education to handicapped students, a primary strength of occupational education teachers is their knowledge of the trade or skill; a potential weakness is in instructional methodology pertaining to the handicapped. A primary strength of special education resource teachers is in teaching methodologies for handicapped learners; a potential weakness is related to their lack of knowledge in the trade or skill. Through cooperative working relationships, occupational education teachers and special education resource teachers can offset their possible limitations and realize maximum benefit from their areas of strength. In those situations where the handicapped student is enrolled in a special education resource room for part of the day for academic instruction and in a regular occupational program for part of the day, the special education teacher and the occupational education teacher should have some time for mutual planning and coordination. The IEP provides a framework for insuring that their planning and coordination is oriented to accomplishing the students' educational goals and objectives. In those situations where the handicapped student is enrolled in regular academic and occupational education programs throughout the day, i.e., fully mainstreamed, support services from special education may be provided by a special education resource or itinerant teacher who provides periodic consultation and technical assistance. Support personnel would also include classroom aides to work directly with the regular occupational education instructor, providing assistance directly in the classroom/shop/lab. For these support personnel in diagnostic services, curriculum instruction and materials, special education resource/itinerant teachers and classroom aides, suggested availability is as follows:

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*/ Rice, Eric, and Rose M. Etheridge. Development of a New Program Model in New Careers for Handicapped Children and Youth: Communication and Media Cluster. Chapel Hill, N.C.: System Sciences, Inc., Spring 1977.

Type of Support	# of Available Personnel
Educational Diagnostician	One per school system; for smaller school systems, shared-time arrangements should be worked out; for larger school systems, a team of diagnosticians would be appropriate.
Curriculum and Materials Specialist	One per school system; shared time arrangements between smaller school systems; specialist for one or more program areas might be justifiable in larger school systems.
Special Education Resource/ Itinerant Teachers	One resource teacher per six occupational teachers; an itinerant teacher could serve an entire school system or several small school systems, with a suggested maximum ratio of one itinerant teacher to 24 occupational education teachers.
Classroom Aides	One aide per classroom when the enrollment is 18-20 students, 5-8 of whom are handicapped.

This recommendation has emphasized types of support personnel that reflect the needs identified by teachers and principals in the study. Other types of support services, e.g., psychological services, speech and hearing services, vocational rehabilitation services, should also be considered. Each individual school system or school should have flexibility in determining the proper mix of support services and how they are placed administratively in the existing school organization.

3. To overcome the barrier of lack of resources in smaller school systems, it is recommended that fund allocation procedures be modified. For example, school systems could be allocated a base level of funds, held harmless from year to year, which does not require local matching. The balance of funds available for allocation to this program state-wide could be distributed on an ADM basis and require local matching. This type of modification would provide each school system with a base amount of funds for establishing and maintaining a program effort directed toward the handicapped in occupational education. It would also make available additional monies to larger school systems (where presumably greater needs exist) for expanding upon their core program effort to meet identified needs. More emphasis is also suggested for cooperative programs between school districts, which could pool their funding allocations.

4. The restrictiveness of federal and state program guidelines on local flexibility in using funds to meet local needs received expressions of agreement from teachers and principals as a barrier to mainstreaming. Over the past several years, much effort has been directed toward clarification of program guidelines, with emphasis being placed upon options available to local units in serving the handicapped. With the passage of new federal and state legislation, continued efforts in this area will be needed. Regional workshops involving Area Directors of Vocational Education, Regional Coordinators for Exceptional Children, local directors of vocational education and local coordinators of programs for exceptional children should be held to clarify guidelines on exactly what this legistion requires and the program alternatives which can be implemented to achieve its purposes. The legislation does contain specific requirements, e.g., "least restrictive educational alternative," due process procedures, individualized education plans, and parent involvement, which must be met or adhered to. However, sufficient flexibility for programming does exist in providing an array of services in a multiple component system for delivery of services. The perceived restrictiveness of program guidelines among teachers and principals must be addressed.

However, the requirements of the legislation cannot be modified. Efforts to explain and clarify the guidelines must be continued, accompanied with specific examples of program options which local units can adopt.

5. To overcome the lack of awareness among occupational education teachers of employment opportunities for handicapped students, the following recommendations are made:

a) Local directors and planners should seek to have persons from their communities serve on local advisory and craft committees who are familiar with employed handicapped individuals or programs for employing handicapped persons, including: successfully employed handicapped adults, sheltered workshop coordinators, specialists in this area from the local Employment Security Office, personnel officers from business and industry, etc.

b) Area directors should include presentations on employment opportunities for handicapped students in regular staff development activities and in-service training programs. Area Directors can obtain information on this topic to share with local directors/planners from such organizations as the President's Committee on Employment of the Handicapped. Printed information, films, filmstrips, and other media should be utilized.

c) In conducting labor market surveys, area directors and local directors/planners should include specific questions on their survey forms related to employment opportunities for the handicapped. This will provide useful information on job opportunities for handicapped individuals in the local area.

d) Regional directors, area directors/planners and occupational education teachers should become knowledgeable of the rules and regulations prohibiting discrimination in hiring on the basis of handicap from Section 504 of the Vocational Rehabilitation Act of 1973.

6. To overcome the barrier of inadequate teacher preparation, a major effort must be undertaken in expanding in-service and pre-service training programs. Specific recommendations include:

a) Cooperative in-service education programs on the local level between occupational education teachers and teachers of exceptional students.

b) In-service programs, workshops and conferences should be provided locally during the school year or through special summer training programs and emphasize increasing teachers' knowledge about the handicapped, attitudes toward the handicapped, diagnosis and evaluation, planning individualized student programs, curriculum development and/or modification, use of instructional materials and equipment, utilization of other school and community resources and legislation. In-service programs and program materials related to vocational education for the handicapped are available for use by local units. Meers (1977) developed and implemented program models for assisting vocational teachers in dealing with the educationally disadvantaged, handicapped, and minorities, including a transportable in-service delivery model in the form of a two-day workshop that can be used in North Carolina. In a project carried out by the American Institutes for Research (Weisgerber and Smith, 1977), a comprehensive set of instructional materials for use in the training of vocational educators was developed. These materials were developed to provide a general understanding of the attitudes, problems and concerns which affect handicapped students, create an awareness of the needs arising from selected types of disabilities and impairments, and provide a strategy for use when planning vocational education for an individual handicapped student. The project developed seven self-instructional modules: (1) "Developing a General Understanding"; (2) "Developing a Positive Attitude"; (3) "Serving the Orthopedically handicapped"; (4) Serving the Visually Handicapped"; (5) "Serving the Mentally

Retarded"; (6) "Serving the Communication Impaired"; and (7) "Developing a Plan of Action." In the System Sciences, Inc. project mentioned earlier (Rice and Etheridge, 1977), a component of that model program dealt with teacher in-service education.

c) Pre-service training programs for occupational education teachers should include a component related to the instruction of the handicapped. University training programs in vocational education and special education should cooperatively develop and provide these training components in close coordination with the Division of Vocational Education staff development specialist. A University of Illinois project, involving special education and vocational education teacher educators, addressed this area (Phelps, Evans, Abbas and Frison, 1976). The project final report includes (1) a description and analysis of professional tasks identified as critical for personnel involved in vocational programming for special needs students and (2) personnel preparation models for the vocational programming of special needs students. Resources such as this may provide useful information in the development of pre-service training programs.

d) The staff development specialist in the Division of Vocational Education and the staff development specialist in the Division for Exceptional Children should jointly develop in-service training programs for Area Directors and Regional Coordinators, local directors/planners and local coordinators, and occupational education and special education teachers.

In-Service education programs should be expanded so that one-third of all occupational education teachers teaching skill training courses receive training in the area of the handicapped on an annual basis.

7. To overcome the barrier of inaccessible facilities, the following strategies are recommended.

a) Occupational education instructors should be encouraged to develop approaches and techniques for eliminating architectural barriers; where possible, and not in conflict with local school policy or labor laws, utilize students in occupational education classes to modify facilities or make adaptations that reduce architectural barriers for handicapped students. Funds available in the recent amendments to the Vocational Education Act for the removal of architectural barriers could be used to support these projects.

b) The Division of Vocational Education's Facilities/Equipment Specialist should develop procedures for local directors/planners to employ in assessing the accessibility of existing facilities, and in altering existing facilities.

c) Accessibility of local vocational facilities should be a requirement for funding of programs.

There is no doubt that the recommendations which have been made for overcoming the major barriers will require additional money if they are to be implemented successfully. Recent history of funding handicapped programs has witnessed allocated funds going unused at the local level, reverting to the State Department of Public Instruction and being carried over to succeeding fiscal years. These funds could be used to implement some of the recommendations, provided State Board of Education approval is forthcoming. It is doubtful, however, that even these funds will be adequate. Additional appropriations from the General Assembly will be required. The Division of Vocational Education, the State Department of Public Instruction and the State Board of Education will have to place higher priority on its funding requests if the needs are to be met and the barriers are to be overcome.

Recommendations for Program Coordination

The implementation of mainstreaming programs for handicapped students in occupational education will require close coordination between the Division of Vocational Education and the Division for Exceptional Children in the State Department of Public Instruction. This coordination must occur at local, regional and state levels. A dissemination conference on the results and findings of the study was held as part of the project and involved regional and state level personnel from these two divisions. One of the major purposes of the conference was to "facilitate effective cooperative working relationships" between the two divisions. A report on this conference is included as Appendix D. The following recommendations relate to this issue of coordination and reflect sentiments expressed by participants at the dissemination conference.

1. Local directors/planners of vocational education and local coordinators of programs for exceptional children should coordinate their program planning, cooperate in providing joint in-service education programs, and facilitate communication and information exchange between their respective staffs. An excellent resource guide for planning for the implementation of mainstreaming programs at the local school level has been written by Paul, Turnbull and Cruickshank (1977). Titled Mainstreaming: A Practical Guide, this book views mainstreaming as a system problem affecting all participants in the educational system, and emphasizes the roles of the principal, teachers, support personnel, parents, school board members, and other school officials. Vocational education personnel may find it helpful in guiding and directing their program efforts at the local level.

2. Area Directors of Vocational Education and Regional Coordinators of Programs for Exceptional Children should coordinate their program planning and technical assistance activities, and cooperate by jointly conducting in-service training programs for local directors/planners and local coordinators, curriculum development and demonstration projects. They should facilitate the exchange of information between local units within their regions.

3. State level personnel (including management and support staff and program consultants) in the Division of Vocational Education and the Division for Exceptional Children should coordinate their program planning and program funding, and cooperate in staff development and curriculum development activities. Communication and information exchange can be facilitated by structured interactions between the two divisions. An example of the benefits that can result from cooperative efforts at the state level is the Planning Guide on Secondary Programs for the Educable Mentally Handicapped, a joint publication of the Division for Exceptional Children, the Division of Vocational Education, and the Division of Vocational Rehabilitation Services.

Summary

This study has addressed the issue of mainstreaming handicapped students in vocational education by surveying the key personnel who will be involved in its implementation. Attitudes toward mainstreaming have been assessed. Needs and barriers have been identified and their implications for program planning discussed. Recommendations for actions utilizing project products, for overcoming the major barriers, and for program coordination have been made. While the study is not without limitations, it provides for the first time information derived on a state-wide basis to guide development and operation of vocational education programs for North Carolina's handicapped students.

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APPENDIX A

Mainstreaming Needs and Barriers
Identified by
Local Occupational Education Directors

FINAL RESULTS OF DELPHI PROCEDURE

NEEDS

Needs Statement	Priority Rank	Priority Voting		
		Total Vote	Number Voting For	Vote Count
Inservice education is needed in diagnosis, curriculum, materials and methods of teaching the handicapped including individualized instruction.	1	2964	19	156
Inservice education is needed for principals, guidance and counseling personnel to help them understand the purposes of each program area of occupational education.	2	2322	18	129
State funds should be allotted which do not have to be matched with local funds.	3	1802	17	106
Workshops to improve teacher attitudes (understand objectives of mainstreaming) and facilitate mainstreaming are needed.	4	1755	15	117
All classes with handicapped students should be small so that instruction can be individualized and competency-based.	5	1536	16	96
Special instructional materials are needed, e.g., Braille reading materials, reading materials at simplified level, cassettes and cassette tapes, etc.	6	1245	15	83
Inservice is needed to help teachers in all occupational areas deal with all handicapped children and understand laws/requirements for serving them.	7	962	13	74
Screening and diagnostic services are needed that lead to suggestions of ways to work with different types of handicapping conditions.	8	767	13	59
Special equipment items and equipment modifications and/or adaptations for handicapped students are needed.	9	441	9	49
Handicapped students need an opportunity to develop positive attitudes toward themselves, others, work, school and learning.	10	440	10	44
A curriculum should be developed for all handicapped students which relates to basic skills, daily living and contains exploratory pre-vocational opportunities.	11	351	9	39
A demonstration project, adequately staffed and equipped, should be developed and implemented to demonstrate methods and techniques for mainstreaming handicapped students.	12	336	8	42

FINAL RESULTS OF DELPHI PROCEDURE

NEEDS

Needs Statement	Priority Rank	Priority Voting		
		Total Vote	Number Voting For	Vote Count
Additional counseling and guidance needs to be provided for handicapped students by occupational teachers and occupational counselors to facilitate the development of the student's self-concept, attitude toward work, and career decision-making skills.	13	256	8	32
The community and employers should be educated to understand all areas of exceptionality, especially the talents and skills of these children.	14	138	6	23
An evaluation system is needed which would test each student to determine his/her eligibility for a particular program area or career.	15	128	4	32
An opportunity for gainful employment is needed when salable skills are mastered.	16	80	5	16
Teachers should be aware of employment opportunities in business/industry so that handicapped students with occupational skills can be placed in jobs to practice their skills and accept responsibilities.	17	72	4	18
Courses should be modified for the needs of handicapped students, i.e., special materials, additional safety instruction, demonstration of skills, projects broken into small steps, adequate time given to complete assignments.	18	63	3	21
Sufficient professional and technical support is needed for implementing changes that are necessary for mainstreaming.	19	48	3	16
Handicapped students need a setting where they can experience success in a work area and develop a marketable skill.	20	36	6	9
Transportation services for handicapped students to and from school, and to their jobs as they enroll in co-op programs, are needed.	21	33	3	11
Teacher aides and/or assistants are required to facilitate the individualized approach needed, and to allow instruction to take place in small classes.	22	22	2	11
Facility renovation is needed to insure handicapped students access to all school facilities.	23	20	2	10
Program evaluation is needed.	24	18	2	9
Handicapped students need to attend classes with regular students and be accepted by their peers.	25	16	2	8

FINAL RESULTS OF DELPHI PROCEDURE

NEEDS

Needs Statement	Priority Rank	Priority Voting		
		Total Vote	Number Voting For	Vote Count
Follow-up services should be provided for handicapped students who have been placed in jobs.	26	15	3	5
On-the-job training programs (supervised by the teacher) should be provided for handicapped students.	27	10	2	5
Cooperation of various public agencies is needed.	27	10	1	10
Handicapped students must be exposed to the same sequential career education program that all students are exposed to (career exploration 7-12) or they will not have the career guidance information and exploratory background.	27	10	2	5
Co-op type staffing is needed to assist handicapped students on the high school level in shifting from a school setting to an employee status.	27	10	2	5
More flexibility is needed in the structure of the occupational program.	31	4	2	2
A paraprofessional is needed to work with exploratory teachers in order to guarantee that these handicapped students discover an area wherein they might specialize.	32	3	1	3
A closer working relationship is needed between professionals who work with students at elementary and high school levels.	32	3	1	3
Acceptance of handicapped students by teacher and peers is essential.	32	3	1	3
Mainstreaming needs to be accepted psychologically and philosophically.	35	2	1	2
Parents of exceptional students should have instruction in dealing with their children.	36	1	1	1
Special visual directions, diagrams for operating equipment, labels, use of colors, and other guides are needed to improve communication.	36	1	1	1

FINAL RESULTS OF DELPHI PROCEDURE

BARRIERS

Barrier Statement	Priority Rank	Priority Voting		
		Total Vote	Number Voting For	Vote Count
Properly trained persons to work with handicapped students in occupational programs are not presently available.	1	2623	18	146
Existing facilities are not adequate to accommodate the needs of handicapped children and lack the flexibility to be adapted with existing resources.	2	2000	16	125
Class size is too large for the individualized instruction which is essential if adequate training is going to be provided.	3	1652	14	118
Lack of resources in small schools to offer options is a barrier.	4	1395	15	93
There is inadequate funding available to purchase needed equipment or materials including remedial and motivational multi-sensory materials and safety devices.	5	1264	16	79
Lack of training and understanding of guidance personnel of this type of student is a barrier; special counseling needed for handicapped students.	6	840	12	70
Federal and State guidelines restrict local flexibility in using funds to meet local needs; present State guidelines tend to encourage special occupational programs for handicapped students--rationale being that this is only sure way to document that these students are being served.	7	768	12	64
Occupational education teacher allotments are inadequate, resulting in shortage of qualified teachers in some areas.	8	624	12	52
Instructors lack training to know capabilities of these students.	9	531	9	59
Work areas are not designed for handicapped students, including equipment that is not appropriately suited for these students and in some instances may not be adaptable.	10	342	9	38

FINAL RESULTS OF DELPHI PROCEDURE

BARRIERS

Barrier Statement	Priority Rank	Priority Voting		
		Total Vote	Number Voting For	Vote Count
Safety problems constitute a barrier, including teachers' fears, risks of operating some machines, inadequate exits and fire escapes, space limitations, unadjusted color coding, and importance of sounds as warning devices.	11	280	7	40
Family aspirations or conditions, which limit the handicapped student, are difficult to alter.	12	272	8	34
Labeling of students as handicapped often leads to segregating them in groups, which runs counter to a mainstreaming approach.	13	231	7	33
Teacher attitude is a barrier, especially prejudicial attitudes of occupational teachers toward handicapped students.	14	168	6	28
Access to classroom and lab space is a barrier including lack of elevators, location of these programs in least desirable part of school or campus requiring negotiation of stairs or long walks, and entrances and exits that limit the mobility of physically handicapped students.	15	162	6	27
Handicapped students often need more time to complete their assignments.	16	138	6	23
Employers are reluctant to accept handicapped students in work experience/cooperative education programs.	17	115	5	23
Adequate support personnel, e.g., qualified aides, tutors, etc., to properly handle classrooms serving exceptional children is not available.	18	95	5	19
Lack of funds for staff development is a barrier.	19	75	5	15
Deficiencies in assessment instruments and the availability of qualified testers lead to incorrect diagnoses and/or placements.	20	68	4	17
Teachers do not have time for tasks as supervising on-the-job training or developing competency-based instructional programs.	21	54	3	18

FINAL RESULTS OF DELPHI PROCEDURE

BARRIERS

Barrier Statement	Priority Rank	Priority Voting		
		Total Vote	Number Voting For	Vote Count
There is inadequate time for occupational education directors, guidance counselors, and teachers to be involved in program planning and development.	22	37	3	13
Employers in business and industry are reluctant to hire handicapped students who have completed an occupational skill training program.	23	30	2	15
Handicapped students are not included in the total organization plan of the school.	24	20	2	10
Occupational programs are too difficult for handicapped students; generally, handicapped students are not prepared to succeed in an occupational program area.	25	12	2	6
Lack of transportation services, including personnel, for handicapped students to travel to and from their jobs in co-op program is a barrier.	26	10	2	5
Proper documentation is neither kept nor used by administration/teachers to plan programs for the individual.	27	7	1	7
There is not enough supportive evidence that mainstreaming is an educationally sound practice.	28	6	2	3
Attitudes of fellow students whose parents have convinced them that they are being held back because of the introduction of special students into the classroom may hamper mainstreaming.	29	4	2	2
Reluctance of peer group to accept the handicapped student as an equal is a barrier.	30	3	1	3
Some parents are opposed to occupational training for their handicapped children; they prefer that the emphasis be placed on academic education.	31	2	1	2
There is inadequate time for teacher inservice training.	32	1	1	1

APPENDIX B

Survey Packet

Secondary School Principals

System Sciences, Inc.

P.O. Box 2345
Chapel Hill, North Carolina 27514

Chapel Hill 919 929-7116
Durham 919 286-0711

Dear Principal:

Your assistance is requested with a special project to improve occupational education programs serving the handicapped. The survey requires opinions of principals like yourself who administer occupational education programs. We need your help in completing the enclosed questionnaires and returning them in the pre-addressed, stamped envelope.

This research study on the handicapped in occupational education is being closely coordinated with the Occupational Research Unit, the Division of Occupational Education, and the Division for Exceptional Children in the North Carolina Department of Public Instruction. You may be interested to know that the Annual Data Plan Committee has reviewed the research plan and data collection instruments and is of the opinion that the research has potential benefit for handicapped children. Your local superintendent and occupational education coordinator have been informed of the study through communications from the Office of the State Superintendent, Dr. Craig Phillips, and our office.

The survey packet enclosed contains an information sheet, two survey instruments, and a page for your comments. The completion of the information sheet and two questionnaires should not require more than forty-five minutes.

We ask that you return the completed questionnaires, information sheet, and your comments in the enclosed return envelope by Tuesday, May 31.

The information derived from this study will be useful to local units in planning and developing occupational programs for the handicapped. The findings of the study will be disseminated to each local education agency in the State at the conclusion of the project. If for some reason you cannot participate in the survey, please return the questionnaire packet immediately in the envelope.

Your assistance and cooperation in this project is very much appreciated. Thanks for your valuable help at this busy time of year.

Sincerely,

Jim Hughes

Jim Hughes
Project Director

JHH:OML
Enclosures

Offices: Suite 206B, Chapel Hill Professional Village, 121 S. Estes Dr., Chapel Hill, N.C.

Corporate Headquarters: Bethesda, Maryland

NORTH CAROLINA SURVEY
ON
OCCUPATIONAL EDUCATION

The purpose of this survey is to obtain useful program planning information from persons like you who administer occupational education programs. It is hoped the results of this study will be useful to local schools in planning and developing occupational education programs for the handicapped.

The survey packet you have been given contains an information sheet, two survey instruments, and a page for your comments. Please read the instructions for each instrument carefully before completing that part. Be sure to complete each part before turning to the next one. Please respond to EACH statement. You are asked not to sign the questionnaires. None of the completed questionnaires will be shown to your colleagues or supervisors.

In previous surveys the word handicapped has caused some difficulty. The following definition is presented for your clarification.

> Handicapped refers to the target group of individuals which have those mental, physical and emotional handicaps which require special instruction and supportive services.

If you have comments about the study or would like follow-up information, please indicate your desires on the comment page at the back of the packet.

Please return the completed questionnaires, information sheet, and your comments in the enclosed return envelope by Tuesday, May 31.

Your time and effort in assisting with this study are greatly appreciated.

INFORMATION SHEET

Instructions: Please complete the following items. Read each item carefully and make your responses on this page.

1. My age is ____________________ years.
(to nearest birthday)

2. I am a (check appropriate space): Female _____
Male _____

3. I have completed the following amount of formal education. (check highest amount):
_____ bachelors degree
_____ masters degree
_____ masters degree plus
_____ doctors degree

4. I have been a school principal for _______________ years.
(specify number)

5. Before becoming a principal, I was a teacher for _______________ years.
(specify number)

6. As a teacher, my primary subject area was ______________________.

7. I have had previous contact or experience with handicapped persons.
_____ Yes _____ No

If yes, was that experience or contact a favorable one?
_____ Yes _____ No

The experience was: with adults _____ with children _____
professional_____ personal _____
(check all appropriate spaces)

EDUCATION SCALE VII

Instructions: Given below are 30 statements on educational ideas and problems about which we all have beliefs, opinions, and attitudes. We all think differently about such matters, and this scale is an attempt to let you express your beliefs and opinions. Respond to each of the items as follows:

Agree very strongly: +3
Agree strongly: +2
Agree: +1

Disagree very strongly: -3
Disagree strongly: -2
Disagree: -1

For example, if you agree very strongly with a statement, you would write +3 on the short line preceding the statement, but if you should happen to disagree with it, you would put a -1 in front of it. Respond to each statement as best you can. Go rapidly but carefully. Do not spend too much time on any one statement; try to respond and then go on.

_____ 1. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.

_____ 2. The curriculum consists of subject matter to be learned and skills to be acquired.

_____ 3. The learning of proper attitudes is often more important than the learning of subject matter.

_____ 4. It is more important that the child learn how to approach and solve problems than it is for him to master the subject matter of the curriculum.

_____ 5. The true view of education is so arranging learning that the child gradually builds up a storehouse of knowledge that he can use in the future.

_____ 6. What is needed in the modern classroom is a revival of the authority of the teacher.

_____ 7. Teachers should keep in mind that pupils have to be made to work.

_____ 8. Schools of today are neglecting the three R's.

_____ 9. Standards of work should not be the same for all pupils; they should vary with the pupil.

_____10. The goals of education should be dictated by children's interest and needs, as well as by the demands of society.

_____11. Each subject and activity should be aimed at developing a particular part of the child's makeup: physical, intellectual, social, moral, or spiritual.

_____12. Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in.

______13. Teachers need to be guided in what they are to teach. No individual teacher can be permitted to do as he wishes, especially when it comes to teaching children.

______14. Learning experiences organized around life experiences rather than around subjects is desirable in our schools.

______15. We should fit the curriculum to the child and not the child to the curriculum.

______16. Subjects that sharpen the mind, like mathematics and foreign languages, need greater emphasis in the public school curriculum.

______17. Since life is essentially a struggle, education should emphasize competition and the fair competitive spirit.

______18. The healthy interaction of pupils one with another is just as important in school as the learning of subject matter.

______19. The organization of instruction and learning must be centered on universal ideas and truths if education is to be more than passing fads and fancies.

______20. The curriculum should contain an orderly arrangement of subjects that represent the best of our cultural heritage.

______21. True discipline springs from interest, motivation, and involvement in live problems.

______22. Emotional development and social development are as important in the evaluation of pupil progress as academic achievement.

______23. Education and educational institutions must be sources of new social ideas.

______24. Children should be taught that all problems should be subjected to critical and objective scrutiny, including religious, moral, economic, and social problems.

______25. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.

______26. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.

______27. Children need and should have more supervision and discipline than they usually get.

______28. Schools should teach children dependence on higher moral values.

______29. The public school should take an active part in stimulating social change.

______30. Learning is experimental; the child should be taught to test alternatives before accepting any of them.

M-Scale

Instructions: Given below are 39 statements on ideas and problems about occupational education for handicapped students. We all think differently about such matters, and this scale is an attempt to let you express your beliefs and opinions. Respond to each of the items as follows:

1 - disagree strongly
2 - disagree moderately
3 - disagree mildly
4 - agree mildly
5 - agree moderately
6 - agree strongly

For example, if you agree strongly with a statement, you would circle the number 6 opposite the statement on the right hand side of the page. If you should happen to disagree moderately with it, you would circle the number 2. Respond to each statement as best you can. Go rapidly but carefully. Do not spend too much time on any one statement. Respond as best you can and then go on.

1. In order to meet the needs of the handicapped student, class size will have to be reduced. 1 2 3 4 5 6

2. The handicapped student would be better served in separate programs. 1 2 3 4 5 6

3. Handicapped students should not be allowed to use occupationally-related machinery because it presents a hazard to them. 1 2 3 4 5 6

4. Smaller school systems do not have sufficient resources to offer the variety of options necessary to provide a flexible, individual occupational program for the handicapped student. 1 2 3 4 5 6

5. Personnel must be made available to help in diagnosing special needs of handicapped students. 1 2 3 4 5 6

6. Employers in business and industry are reluctant to hire handicapped students who have completed an occupational skill training program. 1 2 3 4 5 6

7. Handicapped students need a special setting where they can experience success and develop a marketable skill. 1 2 3 4 5 6

8. In-service education is necessary for all school personnel to understand legislation pertaining to the handicapped. 1 2 3 4 5 6

9. Handicapped students, when placed in a regular classroom, will develop positive attitudes toward themselves, others, work and learning. 1 2 3 4 5 6

1 - disagree strongly
2 - disagree moderately
3 - disagree mildly

4 - agree mildly
5 - agree moderately
6 - agree strongly

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10. Occupational training equipment must be modified to accommodate the handicapped student. 1 2 3 4 5 6

11. Occupational education teachers are qualified to plan individualized programs for handicapped students. 1 2 3 4 5 6

12. School personnel concerned with placement of handicapped students in occupational classes should attend in-service workshops on occupational education. 1 2 3 4 5 6

13. Labeling of students as handicapped often leads to segregating them in groups. 1 2 3 4 5 6

14. Most occupational teachers are inadequately prepared to handle the education of the handicapped student in their classes. 1 2 3 4 5 6

15. Not enough support personnel (aides, tutors, etc.) are available to help teachers provide occupational instruction to handicapped students. 1 2 3 4 5 6

16. Occupational teachers are generally not aware of employment opportunities available for handicapped students with occupational skills. 1 2 3 4 5 6

17. Generally, handicapped students are not prepared to succeed in a regular occupational skill training program. 1 2 3 4 5 6

18. Most community employers are willing to accept handicapped students for placement in cooperative education programs. 1 2 3 4 5 6

19. With the mainstreaming of handicapped students, an unfair amount of time will be spent tending to the needs of only a few students. 1 2 3 4 5 6

20. School facilities (classrooms, shops, labs) are not easily accessible to the handicapped. 1 2 3 4 5 6

21. Cooperative education programs have more potential for effectively serving handicapped students than do regular occupational programs. 1 2 3 4 5 6

22. Existing program guidelines and reporting requirements tend to encourage special occupational programs for handicapped students. 1 2 3 4 5 6

23. In-service education for teachers and other school personnel can change attitudes toward the handicapped. 1 2 3 4 5 6

24. Federal and State program guidelines restrict local flexibility in using funds to meet local needs. 1 2 3 4 5 6

1 - disagree strongly
2 - disagree moderately
3 - disagree mildly
4 - agree mildly
5 - agree moderately
6 - agree strongly

---

25. There is not enough supportive evidence that mainstreaming is an educationally sound practice. 1 2 3 4 5 6

26. Parents of handicapped students need to become more knowledgeable of occupational education programs for their children. 1 2 3 4 5 6

27. School personnel (principals, counselors) should attend in-service workshops concerned with occupational education, its programs, goals, and objectives. 1 2 3 4 5 6

28. Occupational teachers do not have the time to perform tasks (such as developing individual instructional programs) necessary to work with handicapped students. 1 2 3 4 5 6

29. Special instructional materials must be available to teachers with handicapped students in the classroom, e.g., Braille readers, reading materials at simplified levels, etc. 1 2 3 4 5 6

30. Handicapped students need to attend classes with regular students and be accepted by their peers. 1 2 3 4 5 6

31. For handicapped students, a curriculum should be developed which relates basic skills and daily living skills to vocational opportunities. 1 2 3 4 5 6

32. Transportation services are essential for handicapped students if they are to participate in cooperative education programs. 1 2 3 4 5 6

33. Different teaching methods must be employed before the handicapped can be successfully integrated into regular classrooms. 1 2 3 4 5 6

34. Existing facilities can be modified to serve handicapped students with minimum cost. 1 2 3 4 5 6

35. Special curricular materials are necessary before the educational needs of the handicapped can be effectively met. 1 2 3 4 5 6

36. Allocating State occupational funds without requiring local matching would improve programs for handicapped students. 1 2 3 4 5 6

37. Occupational programs are too difficult for handicapped students. 1 2 3 4 5 6

38. In order for the handicapped student to be served in regular occupational programs, attitudes of teachers toward the handicapped must be changed. 1 2 3 4 5 6

39. School systems do not have sufficient funds to purchase necessary equipment or materials to facilitiate the individual needs of the handicapped student. 1 2 3 4 5 6

Thank you for completing the questionnaires.

You should:

1. Make sure you have completed EVERY item according to instructions.
2. Insert your two (2) completed questionnaires and the information sheet in the return envelope for return.

Your cooperation in this project is appreciated.

COMMENTS

Your comments and thoughts are welcomed. We have provided this space for your comments. Thank you for your cooperation.

APPENDIX C

Survey Packet

Occupational Education Teachers

System Sciences, Inc.

P.O. Box 2345
Chapel Hill, North Carolina 27514

Chapel Hill 919 929-7116
Durham 919 286-0711

Dear Occupational Education Teacher:

Your assistance is requested with a special project to improve occupational education programs in North Carolina. The survey requires opinions of teachers like yourself who teach occupational education programs. We need your help in completing the enclosed questionnaires and returning them in the pre-addressed, stamped envelope.

This research study on the handicapped in occupational education is being closely coordinated with the Occupational Research Unit, the Division of Occupational Education, and the Division for Exceptional Children in the North Carolina Department of Public Instruction. You may be interested to know that the Annual Data Plan Committee has reviewed the research plan and data collection instruments and is of the opinion that the research has potential benefit for handicapped children. Your local superintendent and occupational education coordinator have been informed of the study through communications from the Office of the State Superintendent, Dr. Craig Phillips, and our office.

The survey packet enclosed contains an information sheet, four survey instruments, and a page for your comments. The completion of the information sheet and four questionnaires should require about one hour of your time.

We ask that you return the completed questionnaires, information sheet, and your comments in the enclosed return envelope by Tuesday, May 31.

The information derived from this study will be useful to local units in planning and developing occupational programs for the handicapped. The findings of the study will be disseminated to each local education agency in the State at the conclusion of the project. If for some reason you cannot participate in the survey, please return the questionnaire packet immediately in the envelope.

Your assistance and cooperation in this project is very much appreciated. Thanks for your valuable help at this busy time of year.

Sincerely,

Jim Hughes

Jim Hughes
Project Director

JHH:OML
Enclosures

Offices: Suite 206B, Chapel Hill Professional Village, 121 S. Estes Dr., Chapel Hill, N.C.

Corporate Headquarters: Bethesda, Maryland

NORTH CAROLINA SURVEY
ON
OCCUPATIONAL EDUCATION

The purpose of this survey is to obtain useful program planning information from persons like you who provide occupational education instruction. It is hoped the results of this study will be useful to local schools in planning and developing occupational education programs for the handicapped.

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In previous surveys the word handicapped has caused some difficulty. The following definition is presented for your clarification.

> Handicapped refers to the target group of individuals which have those mental, physical and emotional handicaps which require special instruction and supportive services.

If you have comments about the study or would like follow-up information, please indicate your desires on the comment page at the back of the packet.

Please return the completed questionnaires, information sheet, and your comments in the enclosed return envelope by Tuesday, May 31.

Your time and effort in assisting with this study are greatly appreciated.

INFORMATION SHEET

Instructions: Please complete the following items. Read each item carefully and make your responses on this sheet.

1. I am a teacher of (check appropriate service area):

_____ Agriculture
_____ Business and Office
_____ Distributive Education
_____ Health Occupations
_____ Home Economics
_____ Trade and Industrial Education
_____ Industrial Arts

2. My age is ____________________ years.
(to nearest birthday)

3. I am a (check appropriate space): Female _____
Male _____

4. I have completed the following amount of formal education (check highest amount):

_____ high school or less
_____ post-secondary or technical degree
_____ bachelors degree
_____ masters degree
_____ masters degree plus
_____ doctors degree

5. I have been an occupational education teacher for ________________ years.
(specify number)

6. I have had previous contact or experience with handicapped persons.

Yes _____ No _____

If yes, was that experience or contact a favorable one?

Yes _____ No _____

The experience was: with adults _____ with children _____
professional _______ personal _____

(check all appropriate spaces)

EDUCATION SCALE VII

Instructions: Given below are 30 statements on educational ideas and problems about which we all have beliefs, opinions, and attitudes. We all think differently about such matters, and this scale is an attempt to let you express your beliefs and opinions. Respond to each of the items as follows:

Agree very strongly: +3
Agree strongly: +2
Agree: +1

Disagree very strongly: -3
Disagree strongly: -2
Disagree: -1

For example, if you agree very strongly with a statement, you would write +3 on the short line preceding the statement, but if you should happen to disagree with it, you would put a -1 in front of it. Respond to each statement as best you can. Go rapidly but carefully. Do not spend too much time on any one statement; try to respond and then go on.

_____ 1. Learning is essentially a process of increasing one's store of information about the various fields of knowledge.

_____ 2. The curriculum consists of subject matter to be learned and skills to be acquired.

_____ 3. The learning of proper attitudes is often more important than the learning of subject matter.

_____ 4. It is more important that the child learn how to approach and solve problems than it is for him to master the subject matter of the curriculum.

_____ 5. The true view of education is so arranging learning that the child gradually builds up a storehouse of knowledge that he can use in the future.

_____ 6. What is needed in the modern classroom is a revival of the authority of the teacher.

_____ 7. Teachers should keep in mind that pupils have to be made to work.

_____ 8. Schools of today are neglecting the three R's.

_____ 9. Standards of work should not be the same for all pupils; they should vary with the pupil.

_____10. The goals of education should be dictated by children's interest and needs, as well as by the demands of society.

_____11. Each subject and activity should be aimed at developing a particular part of the child's makeup: physical, intellectual, social, moral, or spiritual.

_____12. Right from the very first grade, teachers must teach the child at his own level and not at the level of the grade he is in.

______13. Teachers need to be guided in what they are to teach. No individual teacher can be permitted to do as he wishes, especially when it comes to teaching children.

______14. Learning experiences organized around life experiences rather than around subjects is desirable in our schools.

______15. We should fit the curriculum to the child and not the child to the curriculum.

______16. Subjects that sharpen the mind, like mathematics and foreign languages, need greater emphasis in the public school curriculum.

______17. Since life is essentially a struggle, education should emphasize competition and the fair competitive spirit.

______18. The healthy interaction of pupils one with another is just as important in school as the learning of subject matter.

______19. The organization of instruction and learning must be centered on universal ideas and truths if education is to be more than passing fads and fancies.

______20. The curriculum should contain an orderly arrangement of subjects that represent the best of our cultural heritage.

______21. True discipline springs from interest, motivation, and involvement in live problems.

______22. Emotional development and social development are as important in the evaluation of pupil progress as academic achievement.

______23. Education and educational institutions must be sources of new social ideas.

______24. Children should be taught that all problems should be subjected to critical and objective scrutiny, including religious, moral, economic, and social problems.

______25. One of the big difficulties with modern schools is that discipline is often sacrificed to the interests of children.

______26. Teachers should encourage pupils to study and criticize our own and other economic systems and practices.

______27. Children need and should have more supervision and discipline than they usually get.

______28. Schools should teach children dependence on higher moral values.

______29. The public school should take an active part in stimulating social change.

______30. Learning is experimental; the child should be taught to test alternatives before accepting any of them.

VOCATIONAL TEACHER OPINION QUESTIONNAIRE

The following is a survey of your opinions regarding various statements about vocational education. There are no right or wrong responses, so do not hesitate to mark the statements frankly. In answering each statement we want your personal opinion. We have tried to cover many different and opposing points of view; you may find yourself agreeing strongly with some of the statements, disagreeing just as strongly with others, and perhaps uncertain about others. Whether you agree or disagree with any statement, you can be sure that many other people feel the same as you do. Please be sure you DO NOT OMIT ANY STATEMENT. Respond to each of the items as follows:

1: Disagree very much
2: Disagree on the whole
3: Disagree a little
4: Agree a little
5: Agree on the whole
6: Agree very much

____ 1. Schools can't do much to develop positive attitudes toward work.

____ 2. We now have more vocational programs than we need for the disadvantaged.

____ 3. Vocational education can do little to alleviate the problems of disadvantaged people.

____ 4. Students can benefit little from occupational education in the elementary grades.

____ 5. I think there's no harm in starting occupational preparation for young school children.

____ 6. Early occupational education may stimulate a better attitude toward school work in later years.

____ 7. Vocational teachers can make a real contribution to occupational education at the elementary level.

____ 8. There is no need in the elementary curriculum for the addition of occupational education.

____ 9. I find that individualized instruction using behavioral objectives is valuable in helping the student succeed.

____10. I believe it is more important to work with the entire class than to spend a lot of time with individuals.

____11. I accept the idea that individualized instruction using behavioral objectives allows students to experience success more often.

____12. I regularly use behavioral objectives with individualized learning experiences to help my students develop to their potential.

____13. I argue that increased emphasis on adult vocational programs would eventually reduce inner-city unemployment.

____14. As part of a teaching team I could spend more time developing creativity, responsibility, and habits of inquiry in students.

____15. I teach my classes without assistance and discourage others from helping.

____16. I would greatly dislike being a member of a differentiated teaching team.

____17. I uphold the differentiated team teaching concept as permitting a natural exchange of ideas.

____18. I do not work well enough with others to make differentiated team teaching work.

____19. I'm convinced that differentiated team teaching is a waste of time.

____20. Use of differentiated team teaching would allow me to put more varied content into my lessons.

____21. I say that differentiated team teaching is asking too much of established teachers.

M-Scale

Instructions: Given below are 39 statements on ideas and problems about occupational education for handicapped students. We all think differently about such matters, and this scale is an attempt to let you express your beliefs and opinions. Respond to each of the items as follows:

1 - disagree strongly
2 - disagree moderately
3 - disagree mildly
4 - agree mildly
5 - agree moderately
6 - agree strongly

For example, if you agree strongly with a statement, you would circle the number 6 opposite the statement on the right hand side of the page. If you should happen to disagree moderately with it, you would circle the number 2. Respond to each statement as best you can. Go rapidly but carefully. Do not spend too much time on any one statement. Respond as best you can and then go on.

---

1. In order to meet the needs of the handicapped student, class size will have to be reduced. 1 2 3 4 5 6

2. The handicapped student would be better served in separate programs. 1 2 3 4 5 6

3. Handicapped students should not be allowed to use occupationally-related machinery because it presents a hazard to them. 1 2 3 4 5 6

4. Smaller school systems do not have sufficient resources to offer the variety of options necessary to provide a flexible, individual occupational program for the handicapped student. 1 2 3 4 5 6

5. Personnel must be made available to help in diagnosing special needs of handicapped students. 1 2 3 4 5 6

6. Employers in business and industry are reluctant to hire handicapped students who have completed an occupational skill training program. 1 2 3 4 5 6

7. Handicapped students need a special setting where they can experience success and develop a marketable skill. 1 2 3 4 5 6

8. In-service education is necessary for all school personnel to understand legislation pertaining to the handicapped. 1 2 3 4 5 6

9. Handicapped students, when placed in a regular classroom, will develop positive attitudes toward themselves, others, work and learning. 1 2 3 4 5 6

1 - disagree strongly
2 - disagree moderately
3 - disagree mildly
4 - agree mildly
5 - agree moderately
6 - agree strongly

---

10. Occupational training equipment must be modified to accommodate the handicapped student. 1 2 3 4 5 6

11. Occupational education teachers are qualified to plan individualized programs for handicapped students. 1 2 3 4 5 6

12. School personnel concerned with placement of handicapped students in occupational classes should attend in-service workshops on occupational education. 1 2 3 4 5 6

13. Labeling of students as handicapped often leads to segregating them in groups. 1 2 3 4 5 6

14. Most occupational teachers are inadequately prepared to handle the education of the handicapped student in their classes. 1 2 3 4 5 6

15. Not enough support personnel (aides, tutors, etc.) are available to help teachers provide occupational instruction to handicapped students. 1 2 3 4 5 6

16. Occupational teachers are generally not aware of employment opportunities available for handicapped students with occupational skills. 1 2 3 4 5 6

17. Generally, handicapped students are not prepared to succeed in a regular occupational skill training program. 1 2 3 4 5 6

18. Most community employers are willing to accept handicapped students for placement in cooperative education programs. 1 2 3 4 5 6

19. With the mainstreaming of handicapped students, an unfair amount of time will be spent tending to the needs of only a few students. 1 2 3 4 5 6

20. School facilities (classrooms, shops, labs) are not easily accessible to the handicapped. 1 2 3 4 5 6

21. Cooperative education programs have more potential for effectively serving handicapped students than do regular occupational programs. 1 2 3 4 5 6

22. Existing program guidelines and reporting requirements tend to encourage special occupational programs for handicapped students. 1 2 3 4 5 6

23. In-service education for teachers and other school personnel can change attitudes toward the handicapped. 1 2 3 4 5 6

24. Federal and State program guidelines restrict local flexibility in using funds to meet local needs. 1 2 3 4 5 6

1 - disagree strongly
2 - disagree moderately
3 - disagree mildly
4 - agree mildly
5 - agree moderately
6 - agree strongly

---

25. There is not enough supportive evidence that mainstreaming is an educationally sound practice. 1 2 3 4 5 6

26. Parents of handicapped students need to become more knowledgeable of occupational education programs for their children. 1 2 3 4 5 6

27. School personnel (principals, counselors) should attend in-service workshops concerned with occupational education, its programs, goals, and objectives. 1 2 3 4 5 6

28. Occupational teachers do not have the time to perform tasks (such as developing individual instructional programs) necessary to work with handicapped students. 1 2 3 4 5 6

29. Special instructional materials must be available to teachers with handicapped students in the classroom, e.g., Braille readers, reading materials at simplified levels, etc. 1 2 3 4 5 6

30. Handicapped students need to attend classes with regular students and be accepted by their peers. 1 2 3 4 5 6

31. For handicapped students, a curriculum should be developed which relates basic skills and daily living skills to vocational opportunities. 1 2 3 4 5 6

32. Transportation services are essential for handicapped students if they are to participate in cooperative education programs. 1 2 3 4 5 6

33. Different teaching methods must be employed before the handicapped can be successfully integrated into regular classrooms. 1 2 3 4 5 6

34. Existing facilities can be modified to serve handicapped students with minimum cost. 1 2 3 4 5 6

35. Special curricular materials are necessary before the educational needs of the handicapped can be effectively met. 1 2 3 4 5 6

36. Allocating State occupational funds without requiring local matching would improve programs for handicapped students. 1 2 3 4 5 6

37. Occupational programs are too difficult for handicapped students. 1 2 3 4 5 6

38. In order for the handicapped student to be served in regular occupational programs, attitudes of teachers toward the handicapped must be changed. 1 2 3 4 5 6

39. School systems do not have sufficient funds to purchase necessary equipment or materials to facilitiate the individual needs of the handicapped student. 1 2 3 4 5 6

ATHI SCALE

Instructions:

Mark each statement in the left margin according to how much you agree or disagree with it. Please mark every one. Write +3, +2, +1; or -3, -2, -1 depending on how you feel in each case.

+3: I AGREE VERY MUCH
+2: I AGREE PRETTY MUCH
+1: I AGREE A LITTLE

-3: I DISAGREE VERY MUCH
-2: I DISAGREE PRETTY MUCH
-1: I DISAGREE A LITTLE

_____1. Parents of handicapped children should be less strict than other parents.

_____2. Handicapped persons are just as intelligent as non-handicapped ones.

_____3. Handicapped people are usually easier to get along with than other people.

_____4. Most handicapped people feel sorry for themselves.

_____5. Handicapped people are the same as anyone else.

_____6. There shouldn't be special schools for handicapped children.

_____7. It would be best for handicapped persons to live and work in special communities.

_____8. It is up to the government to take care of handicapped persons.

_____9. Most handicapped people worry a great deal.

_____10. Handicapped people should not be expected to meet the same standards as non-handicapped.

_____11. Handicapped people are as happy as non-handicapped ones.

_____12. Severely handicapped people are no harder to get along with than those with minor handicaps.

_____13. It is almost impossible for a handicapped person to lead a normal life.

_____14. You should not expect too much from handicapped people.

_____15. Handicapped people tend to keep to themselves much of the time.

_____16. Handicapped people are more easily upset than non-handicapped people.

_____17. Handicapped persons cannot have a normal social life.

_____18. Most handicapped people feel that they are not as good as other people.

_____19. You have to be careful of what you say when you are with handicapped people.

_____20. Handicapped people are often grouchy.

Thank you for completing the questionnaires.

You should:

1. Make sure you have completed EVERY item according to instructions.

2. Insert your four (4) completed questionnaires and the information sheet in the return envelope for return.

Your cooperation in this project is appreciated.

COMMENTS

Your comments and thoughts are welcomed. We have provided this space for your comments. Thank you for your cooperation.

APPENDIX D

Dissemination Conference Report

Conference Report

Mainstreaming the Handicapped in Vocational Education Programs in North Carolina

Raleigh, North Carolina
December 14, 1977

James H. Hughes
Project Director
System Sciences, Inc.
Chapel Hill, North Carolina 27514

The conference reported on herein was conducted pursuant to Contract Number 300760375 with the U. S. Office of Education, Bureau of Occupational and Adult Education, Division of Research and Demonstration (DVER Project No. 498 AH 60193).

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SYSTEM SCIENCES, INC.

Acknowledgements

The support and assistance of persons within the Division of Vocational Education and the Division for Exceptional Children were essential to the conference and the success it achieved. A special note of thanks is extended to Dr. Charles J. Law, Jr., Mr. Robert A. Mullen, and Mr. Jim Lunsford of the Division of Vocational Education for their able assistance in helping to plan and coordinate the conference. The support of Mr. Theodore R. Drain, Director, Division for Exceptional Children, and his staff, especially Lowell Harris and Mamie Hubbard, is gratefully acknowledged. Special thanks are due to the members of the reaction panel who shared their comments, concerns and reactions to the study and the major issues of the conference. Finally, and most importantly, special thanks go to all of the conference participants who took time from their busy schedules to come together, share information and initiate the process of developing closer coordination between the two divisions. To all of them, I extend my appreciation and best wishes for success in the work that still lies ahead.

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Introduction

Recent Federal and North Carolina legislation require the assurance of equal educational opportunities for the handicapped. Providing appropriate education for handicapped students will require increased emphasis on the integration of handicapped students into regular vocational education programs. Coordination and cooperation between vocational education and special education are important for successful development and operation of vocational education programs for the handicapped.

Purposes of the Conference

The three major purposes of the conference were:

1) share results and findings of the research project, "Mainstreaming the Handicapped in Preparatory Occupational Education Programs in North Carolina," with selected personnel in the Divisions for Exceptional Children and Vocational Education;
2) delineate program implications, set priorities, and develop initial plans of action for improving the delivery of vocational education to handicapped students; and,
3) facilitate effective cooperative working relationships between the Division of Vocational Education and the Division for Exceptional Children.

Conference Participants

Participants at the conference included: management staff, chief consultants and regional coordinators from the Division for Exceptional Children; and management and support staff, chief consultants and area directors from the Division of Vocational Education. During the morning session, vocational education research and teacher training were represented by special conference guests --Dr. Charles Rogers, Research Coordinating Unit, Dr. Joseph Clary, North Carolina State University, and Dr. James Paul, University of North Carolina at Chapel Hill. A list of conference participants is attached.

Conference Activities

The conference involved three major activities. The first two, held in the morning session, included a presentation of the results and findings of the research project and comments from a reaction panel. In the afternoon session, conference participants worked in small task groups, discussing program implications and developing plans of action for the future. Reports from representatives of each of the small task groups were made to the whole group at the conclusion of the conference. Each of the three major activities are described more fully in the following paragraphs.

The Research Project

The research project, "Mainstreaming the Handicapped in Preparatory Occupational Education Programs in North Carolina," involved a survey of local vocational education directors, vocational education teachers, and principals of secondary schools providing vocational education programs. The presentation of results and findings of the study was made by the Project Director.

The project involved a three-phase research effort. The first phase utilized the Delphi technique with local vocational education directors to assess needs and identify barriers related to mainstreaming, the integration of handicapped students into regular vocational education programs. The output of this phase provided the content base for a questionnaire on mainstreaming which was used in a mail survey of high school principals and vocational education teachers during the second and third phases of the project. The presentation focused on methodology, teachers' and principals' attitudes toward mainstreaming, and their perceptions of mainstreaming needs, barriers and related items. Results were presented for the teacher sample as a whole, and for differences in perceptions among teachers on the basis of vocational program area, school enrollment size and school location. Results were presented for the principal sample as a whole, and for differences in perceptions among principals on the basis of school enrollment size and school location.

(Note: A complete description of the study, and results and findings are available. An Executive Summary of the final report of the project including major findings and recommendations may be obtained from the author, upon request.)

Comments from the Reaction Panel

The conference participants comprising the reaction panel consisted of Bill George, Ann Isely and Anne Hyde from the Division for Exceptional Children; and, Bob Mullen, M. S. Sanders, and Horace Robertson from the Division of Vocational Education.

The comments of the reaction panel members touched upon several areas, including: methodology, definitions of terms, information gaps or areas not covered by the study, implications and suggestions for future research.

The utilization of local vocational education directors in Phase I of the study for developing the content base for the questionnaire on mainstreaming was questioned. One panel member felt that this group was probably less knowledgeable than either teachers or principals about needs and barriers related to the integration of handicapped students into regular vocational programs. Several panel members cited problems in the definition of terms such as "mainstreaming," "handicapped," and "class size." It was suggested by one panel member that educators do not like the term "mainstreaming" as it tends to be such a vague concept. "Handicapped" was used as a global term and not specifically broken down into types of handicapping conditions. It was pointed out that some of the barrier and needs statements might have been reacted to differently by teachers and principals, for example, physically handicapped as compared to mentally handicapped. Reduction of class size was identified as a high priority need by the teachers and principals. Information on average class size for regular vocational education programs and appropriate class size for programs including handicapped students would have been helpful to understanding this need.

The reaction panel expressed few surprises at the results and findings presented, although information gaps were suggested. These included: the lack of identification of motor skills or the lack of mobility skills as a barrier, and the need for a more definite focus on the relationship between occupational education and special education, particularly in reference to looking at the needs and how special education can help meet those needs.

The panel members felt that the study provides, for the first time, a data base on a subject of current concern to both special educators and vocational educators. The results and findings of the study should be viewed from the standpoint of how they can be used to reduce problems in putting together effective programs at the local level. It was pointed out that additional questions need to be raised which could be answered from the data base that has been established. For example, responses of the different vocational program areas could be examined, and potentially important implications for programming in each vocational program area could be determined.

A major need identified in the study that was echoed by the panel members was the need for teacher education, both preservice and inservice. Panel members emphasized this need as well as the need for joint planning and cooperation between vocational education and special education at the state, regional and local levels.

Implications and Plans of Action: The Work of the Small Task Groups

In organizing the small task groups, the conference participants were divided into three levels: Level I, management and support staff; Level II, Chief Consultants; and, Level III, Area Directors and Regional Coordinators. Five small groups were established which combined vocational personnel and exceptional children personnel by levels. One group contained division management and support personnel, two groups were comprised of Chief Consultants, and two groups were comprised of Regional Coordinators and Area Directors.

The small task groups worked within a structured format to identify, and place into priority, program implications of mainstreaming handicapped students in vocational education. A plan of action, including suggestions for cooperation between the two divisions, was developed by the groups to address their priority program implications.

The output from each of the five groups consisted of a priority statement of program implications and a suggested plan of action to meet the needs identified. For each of the five groups, the program priorities and plans of action are presented in the following paragraphs.

Group I: Division Management and Support Staff

Program Priority: Joint planning with continuing involvement of both divisions with the objective being better understanding of goals, purposes and long-range planning in joint curriculum and program development.

Plan of Action: From this conference, a representation from both divisions will convene to plan (1) a two-day in-depth session involving both staffs to adequately explain programs. This session should occur prior to February 15; and (2) task forces from both divisions should be established to work on specific areas and report back to a central planning group. Specific areas would include (a) curriculum, (b) funding, (c) planning, (d) staff development, (e) the elimination of bias and discrimination due to handicap, race, or sex differentials and (f) establishing and maintaining contact with other interest groups.

Group II-1: Chief Consultants

Program Priority: Preservice and inservice education for administrators, teachers and counselors.

Plan of Action: The group stated its belief that there is a conscientious desire among educators for handicapped students to learn vocational skills. Local personnel must be convinced of the need for programs for the handicapped in vocational education and be supportive of others' efforts at the local level. Staff at the state level involved in vocational education, general education, pupil personnel and special education should develop a plan for collaborative inservice efforts. Teachers should be trained to develop observational skills and increase their ability to manipulate the environment so that learning is facilitated. A sequential list of competencies from grades K through 12 should be developed to support the inservice and preservice training activities. However, before teaching competencies can be ascertained, inservice training of teacher educators must occur.

Group III-1: Area Directors and Regional Coordinators

Program Priorities: (1) Cooperative planning from regional level to local coordinators of exceptional children and local directors of vocational education. (2) Effective refinement of communications skills at the local administrative level that will assist appropriate vocational and exceptional children's programming. (3) Joint staff development programs between exceptional children and vocational education administrative and teaching staffs.

Plan of Action: Establish regional staff development activities for leadership personnel to become familiar with roles and responsibilities in establishing and carrying out cooperative efforts. These staff development activities should involve all local educational agencies within a region. Identify one local educational agency to develop a model that can be utilized by other LEAs.

Group III-2: Area Directors and Regional Coordinators

Program Priorities: Three program priorities were identified by this group, all of which were viewed from a regional perspective. (1) Develop a process for sharing, planning, and coordinating programs, goals, and objectives at the state and regional level. (2) Develop a viable teacher education program for vocational education teachers, introducing them to concepts and strategies for working with children with special needs. (3) Integrate teacher training programs and field competency enhancement programs for vocational education and special education providers.

Plan of Action: Establish periodic meetings to bring together all regional staff with state personnel to accomplish the following: (a) jointly develop long-range goals common to both divisions, (b) jointly develop short-term objectives, (c) jointly determine roles and responsibilities related to short-term objectives, (d) establish time line for implementation, (e) jointly develop evaluation process which would be both objective and subjective, and (f) jointly utilize evaluation information to direct or redirect planning and coordination. The group noted that this plan of action would need to be carried out recognizing two levels of planning (state and regional) and two levels of interrelationship between the divisions (formal and informal).

Conference Evaluation

Conference participants were asked to evaluate the conference by reacting to a brief evaluation sheet which focused on the organization and activities of the conference and also on each individual's perceptions of how they personally benefited from the conference. A summary of the participants' evaluation is attached to this report.

Twenty-six of the thirty conference participants completed evaluation sheets.

Overall, the participants' evaluation of the conference was favorable. Certain aspects of the conference were rated more favorably than others. The small task groups were rated as the most favorable activity of the conference. Sixty-nine percent indicated that the use of the small task groups to identify program implications, help set priorities and develop plans for future action was "excellent." Use of the small task groups to facilitate cooperative working relationships between the two divisions was rated "excellent" by 81% of the participants. Use of the reaction panel to explore issues in detail was the least favorably rated component of the conference. One possible reason for this was the very short period of time which the reaction panel members had in presenting their comments. The clarity of the presentation on the results and findings of the project and the usefulness and relevance of the information provided received favorable ratings from the conference participants. Written comments made by the conference participants are included in the evaluation summary, and illustrate the general attitude of the conference participants toward the objective of facilitating cooperation and coordination between the two divisions. A number of the comments stressed the importance of the conference as it related to accomplishing this objective or initiating steps in this direction.

Conference participants were also asked to express their extent of agreement or disagreement with statements related to (1) increased understanding of the issues involved in providing vocational education for the handicapped, (2) awareness of actions and steps which need to be taken, (3) awareness of resources available in both divisions, (4) understanding of the need and potential for increased cooperation between the divisions, and (5) better understanding of the role that they must play in working within their own division as well as coordinating with staff from other divisions in the State Department of Public Instruction. For all of the items except one, over 90% of the conference participants agreed with each of the statements. There was less agreement (almost 20% disagreement) with the statement related to awareness of resources available through the Divisions of Vocational Education and Exceptional Children. Continued emphasis on this particular area (awareness of available resources) will help personnel from both divisions have a better understanding of potential cooperation and the role they might play in implementing inter-divisional cooperation.

Summary

The evaluation indicates that the conference was successful in achieving its objectives. Personnel from both divisions appear to enthusiastically support activities such as this conference which bring them together to discuss mutual problems, identify areas of mutual interest and concern, and initiate steps toward more effective cooperation and coordination. Conference participants also recognize that the coordination and cooperation required to really impact upon improving vocational education programs for the handicapped will have to come from more than just a one-day conference. They require a long-term commitment to come together often, to formulate plans, to implement those plans cooperatively, and to keep the communication channels open. Mutual support and improved services in the delivery of vocational education to handicapped students will result.

Cooperation and coordination must occur at each level in the delivery system--local, regional, and state. Priority program areas for mutual coordination and cooperation identified by the conference participants are planning and staff development.

CONFERENCE PARTICIPANTS

DIVISION FOR EXCEPTIONAL CHILDREN

I. Division Management

Ted Drain*
Bill George
Mamie Hubbard
Lowell Harris*
David Mills*
Henry Johnson

II. Chief Consultants

Ann Isley, Mentally/Physically Handicapped
Leon Silber, Learning Disabilities
Janis Carroll, Emotionally Handicapped
Cornelia Tongue, Gifted and Talented*

III. Regional Coordinators

Jeannette Shaw, District I
Bill McGrady, District II
Libby Broome, District III*
Katherine Moore, District IV*
Nancy Williams, District V
Dean Koulouris, District VI
Glenda Adams, District VII
Anne Hyde, District VIII

DIVISION OF VOCATIONAL EDUCATION

I. Division Management, Others

Charlie Law
Cliff Belcher*
Bob Mullen
V. B. Hairr
Meg Murphy*
Jim Lunsford
Dan Bruffey

II. Chief Consultants

June Atkinson, B & O
Horace Robertson, D.E.
Nancy Raynor, Health
Marjory Unrath, Home Econ.
Ralph Johnston, Ind. Arts*
Ted Rollins, T & I*
Tommie Stephens, Pre-vocational
Barbara Carraway, representing T & I

III. Area Directors

John Hassell, District I*
M. S. Sanders, District II
Carl Whitehurst, District III*
John Huffman, District IV*
N. E. Bostic, District V
Earl Price, District VI
Tom Bridges, District VII
Fred Bishop, District VIII

RESEARCH AND TEACHER PREPARATION

Charles Rogers
James L. Paul
Joseph R. Clary
Kathy Mahmoud*

* Invited participants who were unable to attend.

SUMMARY OF PARTICIPANTS' EVALUATION

CONFERENCE ON HANDICAPPED IN VOCATIONAL EDUCATION

Your assistance is needed in evaluating the effectiveness of this conference.

I. Please rate each of the items below (poor, fair, good or excellent) in terms of how well you feel each contributed to the conference. Space is also provided for comments.

	Poor *	Fair	Good	Excellent	COMMENTS **
1. The overall organization of the conference, including the agenda and format for addressing the topic and related issues.		$\frac{1}{4}$	$\frac{16}{62}$	$\frac{9}{36}$	
2. Clarity of the presentation on results and findings of the research project.		$\frac{2}{8}$	$\frac{19}{73}$	$\frac{5}{19}$	
3. Usefulness and relevance of the information provided on teachers' perceptions of mainstreaming.		$\frac{3}{12}$	$\frac{18}{69}$	$\frac{5}{19}$	
4. Usefulness and relevance of the information provided on principals' perceptions of mainstreaming.		$\frac{4}{15}$	$\frac{16}{62}$	$\frac{6}{23}$	
5. Use of the reaction panel to explore issues in detail.		$\frac{7}{27}$	$\frac{14}{54}$	$\frac{5}{19}$	
6. Use of small task groups to identify program implications, help set priorities, and develop plans for future action.			$\frac{8}{31}$	$\frac{18}{69}$	
7. Use of small task groups to facilitate cooperative working relationships between the two divisions.			$\frac{5}{19}$	$\frac{21}{81}$	

*For each rating category, the number of participants and their percentage is shown (n/%). The number of conference participants who completed an evaluation form was 26.

**Comments made by participants on these seven areas are listed on the following page.

Participants' Comments

1. The overall organization of the conference, including the agenda and format for addressing the topic and related issues.

   Small group sessions most valuable

   Morning session took too long on details of study

   Extremely well organized

   The results of the study needed to be covered--some of us have not read it yet.

2. Clarity of the presentation on results and findings of the research project.

   Consensus of mainstreaming needs to be established for both divisions

   I was not totally familiar with all surveys used so I had to interpolate to fill in the holes.

   Appreciated having copies of materials in advance

3. Usefulness and relevance of the information provided on teachers' perceptions of mainstreaming.

   Good beginning

4. Usefulness and relevance of the information provided on principals' perceptions of mainstreaming.

   Good beginning

5. Use of the reaction panel to explore issues in detail.

6. Use of small task groups to identify program implications, help set priorities, and develop plans for future action.

   Assigned to groups with common concerns primarily was sound approach

   Most (helpful)

   I was involved.

7. Use of small task groups to facilitate cooperative working relationships between the two divisions.

   Should produce a willingness to continue

   I was involved.

   Excellent component

   I feel that some excellent groundwork was laid.

II. Please read each of the statements presented below, and indicate whether you "agree," "agree very much," "disagree" or "disagree very much," with each statement by placing a check (✓) in the appropriate column.

NOTE: *For each category of agreement/disagreement, the number of participants and their percentage is shown (n/%).*

	Agree	Agree Very Much	Disagree	Disagree Very Much
1. As a result of this conference, I have a better understanding of the issues involved in mainstreaming the handicapped in vocational education.	$\frac{19}{73}$	$\frac{5}{19}$	$\frac{2}{8}$	
2. As a result of this conference, I have a better understanding of needs which must be met and barriers which must be overcome if mainstreaming the handicapped in vocational education is to be done successfully.	$\frac{17}{65}$	$\frac{8}{31}$	$\frac{1}{4}$	
3. As a result of this conference, I have a better understanding of what the program implications are/will be for mainstreaming the handicapped in vocational education.	$\frac{17}{65}$	$\frac{7}{27}$	$\frac{2}{8}$	
4. I have a good understanding of the priority areas which need to be addressed if we are to implement appropriate vocational education programs for the handicapped.	$\frac{18}{69}$	$\frac{8}{31}$		
5. My awareness of action steps which need to be taken to implement mainstreaming of handicapped students in vocational education has been increased.	$\frac{17}{65}$	$\frac{9}{35}$		
6. My awareness of resources available through the Divisions of Vocational Education and Exceptional Children which can be used to provide better programs for the handicapped has been increased.	$\frac{12}{46}$	$\frac{9}{35}$	$\frac{5}{19}$	
7. I have a better understanding of the need and potential for increased cooperation between the Divisions of Vocational Education and Exceptional Children in providing vocational education programs for handicapped students.	$\frac{14}{54}$	$\frac{12}{46}$		
8. I have a better understanding of the role I must play in working within my own division as well as with staff from other divisions in the SDPI in developing and implementing appropriate vocational programs for the handicapped.	$\frac{18}{69}$	$\frac{7}{27}$	$\frac{1}{4}$	

Comments

III. In the space provided below, please make any additional comments you have regarding the conference, the topic issue, etc.

- Appreciated the importance attached to our joint "sit down and learn together" conference approach; the job will never get done without more structured interaction between our two divisions--and we need our own competencies strengthened on this issue before we get more involved as change agents in the LEAs!

- Thoroughly enjoyed the conference.

- Very challenging and motivating. Thanks so much for your efforts to get us together.

- Very informative meeting.

- Gifted/talented education should also be considered inasmuch as the N.C. law includes this area under its exceptional children definition.

- Excellent job, all things considered. Would have been better to shorten presentation (however some group members were responsible for this) and increase group interaction. Ya done good!

- Would like additional followup on the attitude questionnaire; i.e.,
  (1) What are the different groups' attitudes toward the handicapped?
  (2) What are the different groups' attitudes towards vocational education?

- Very good workshop. Thanks!

- 1. Time for small group discussion was limited.
  2. Reaction panel should have had more time.

- This was an excellent step forward. A follow-up with Division Directors on plan of action would be good.

- Communication must continue with some time-lines set for implementation.

- Would have liked less time on statistics and more on implications.